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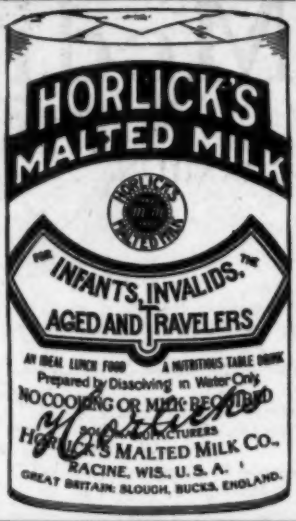

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ILLINOIS MEDICAL JOURNAL

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VOL. XXXIII. CHICAGO, ILL., FEBRUARY, 1918 No. 2

Original Articles

THE DIAGNOSIS OF THE AGE OF THE FETUS BY THE USE OF ROENTGENOGRAMS.

JULIUS H. HESS, M. D.,

CHICAGO, ILL.

From the Department of Anatomy and Pediatrics, University of Illinois, College of Medicine.

The determination of the age of the fetus is of considerable practical importance. On the age of the fetus and on its development are based the chief factors that are to be considered before giving prognosis as to the possibility of saving the life of the prematurely born infant. The method of treatment and especially that of feeding depends primarily on the age of such an infant. In medicolegal cases the question of the age of the fetus may occasionally be of paramount importance and when only portions of the fetus are available for examination, the roentgenographic method offers the best means for arriving at a diagnosis of the age of the fetus.

The Time of Conception. The age of the fetus is the time which has elapsed from conception, that is, from the time of the ferilization of the ovum from which the fetus developed. The time of conception cannot be accurately determined. Conception does not follow immediately after insemination and its relation to menstruation is so uncertain that an error of one month is possible in attempts to calculate the age of the fetus from the time of menstruation. A number of observers, Arnold[1], Bischoff[2], Dalton[3], Leopold and Mironoff[4], Leopold and Ravano[5], Reichert[6], have found that menstruation and ovulation usually occur at the same time, but that ovulation may take place at any time during the inter-menstrual period and that, on the other hand, menstruation may occur without ovulation.

Issmer[7] found that when pregnancy was calculated from the first day of the last menstruation it averaged 280 days in 1,220 cases diagnosis of fetal age, while in 628 cases it averaged 269 when estimated from a fruitful copulation.

Mall[8] in his studies on the determination of the age of human embryos and fetuses comes to the conclusion that "the most probable time of conception is during the first week after the menstruation, as advocated by Hensen[9] and other obstetricians and that in determining the age of the human embryos it is probably more nearly correct to count from the end of the last period, for all evidence points to that time as the most probable at which pregnancy takes place."

His conclusions are also confirmed by recent observations of Siegel[10] on 100 pregnant women in whom the day of an isolated intercourse could be determined, this being made possible by the conditions during the present war. He concludes that conception can only take place during the first twenty-one days after the last period and that the most susceptible time is before the sixth day. In no case could conception be established after the twenty-first day, so that he thinks it is safe to say that the post-menstrual period is the most favorable time for fertilization.

According to all this, therefore, conception in most cases occurs shortly after menstruation and the age of the fetus is to be counted from the last day of menstruation. But even using this method of computing the age, there is room for an error in some cases, which may amount to as much as one month.

The Length of the Fetus. If the date of the last menstruation or the date of a single isolated coitus was not known, then estimation of the age has usually been made on the basis of the length of the fetus, which has been generally regarded as the safest guide in the determination of the age of the fetus.

The average lengths of the normal fetuses as

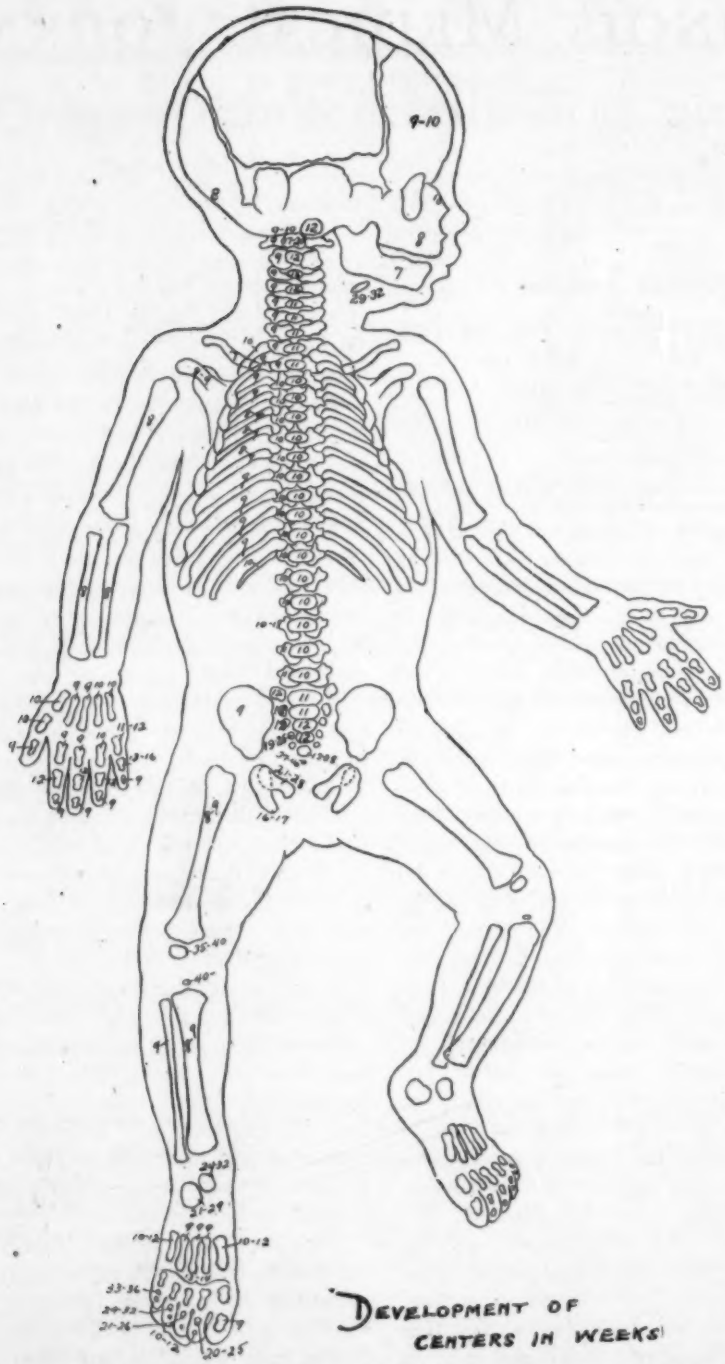

Fig. 1.—Diagram showing osseous development of infant at full term, and development of ossification centers in weeks. Centers shown which are frequently absent at birth: (1) head of tibia; (2) coccyx. Centers omitted in outline: (1) sternum; (2) hyoid.

given by different authors are given in the following table:

TABLE I.

Lunar months	Mall (loc.cit.)	von Winckel (11)	De Lee (12)	Lambertz (13)	Ahlfeld (14)	Schroeder (15)	
1st	–0.25		0.75–0.9				cm.
2nd	0.55–3.0	0.9–2.5	2.5				"
3rd	4.1–9.8	7–9	7–9	6–11			"
4th	11.7–18.0	10–17	10–17	11–17			"
5th	19.8–25.0	18–27	17–26	17–28			"
6th	26.8–31.5	28–34	28–34	26–37			"
7th	33.1–37.1	35–38	35–38	35–38	36–40		"
8th	38.4–42.5	40–43	43	38–42	40–43	41.3	"
9th	43.6–47.0	46–48	46–48	42–45	46–48	44.6	"
10th	48.4–50	48–50	48–50	45–52	48–50	46.0	"

The length for the first two months represents

Fig. 2.—Photographs of fetus (exact size), *a*, at 4 to 5 weeks; *b*, 5 to 6 weeks, and *c*, 6 to 7 weeks, respectively.

the measurement from the vertex to the buttocks, all the other measurements are from vertex to the sole.

Issmer (loc. cit.) estimated the length of pregnancy and the age of the child in a number of cases and gives the following figures as to the length and the age of the baby.

TABLE II.

Size of the child in cm.	No. of cases	Age in days as calculated from the beginning of the last menstruation
48	203	271 days
49	272	279 days
50	252	277 days
51	211	282 days
52	122	283 days
53	34	286 days
54	18	290 days

The same author has observed that in children of the same length differences of 10 to 18 days in pregnancy are possible.

There are many physiological and pathological variations and numerous factors influencing the length, the weight and also other measurements of the fetus. Von Winckel (loc. cit.) gives the length of the newborn as 48-56 c. m., but children over 60 c. m. have frequently been born.

Some children at term are small because of the general debility of the mother or because of an acute or chronic disease during pregnancy. Diseases of the placenta and its abnormal location usually retard the growth of the fetus. In successive pregnancies the children at term usually increase in size.

Other Measurements of the Fetus. Von Winckel (loc. cit.) regards the circumference of the head as being of importance for the diagnosis of age of the fetus and gives the following figures:

4th month.....10-14 cm.
5th month.....13-18 cm.
6th month.....19-24 cm.
7th month.....23-28 cm.
8th month.....25-30 cm.
9th month.....29-33 cm.
10th month.....32-37 cm.

The weight is entirely unreliable for the estimation of the age of the fetus, because it is subject to too many variations and is much influenced by mother's general condition and more especially by her diet.

Thus, it is seen that even the length which up to this time has been regarded as the most reliable criterion for the determination of the age of the fetus, has many shortcomings and allows of an error of several weeks.

Roentgenograms of the Normal Development of the Skeleton. Since roentgenograms have been found of much value in diagnosis of various diseases and conditions, it was hoped that they might be of service in the diagnosis of the age of

Fig. 3.—Roentgenogram (*a*) and diagram (*b*) of fetus at 7 weeks, actual size.

the fetus and that the development of the fetus as observed with the aid of roentgen rays might be a reliable guide for the determination of its age. The developing bones of the fetus with their centers of ossification are the only organs suitable for this purpose.

Basing our facts upon the roentgenographic studies of a series of 55 normal cases which we have collected during the past year and whose ages we have determined from the history of menstruation and of pregnancy and from their measurements, we find the normal process of the

development of the human skeleton as observed in roentgenograms, to be as follows:

The ossification of the human skeleton begins in the upper part of the body and spreads very rapidly in both directions.

Seventh Week. The first centers of ossification develop in the clavicles in the sixth to seventh week of intrauterine life (Keibel-Mall, loc. cit., Rauber-Kopsch[16]), but they do not become visible in the roentgenograms until in the seventh week. The ossification center appears in the middle of each clavicle and spreads rapidly in both directions.

Soon after the ossification has started in the clavicle, one center appears in each half of the mandible.

Outside of these centers of ossification usually no other centers, except occasionally that of the maxilla, are visible in roentgenograms of seven weeks old fetus.

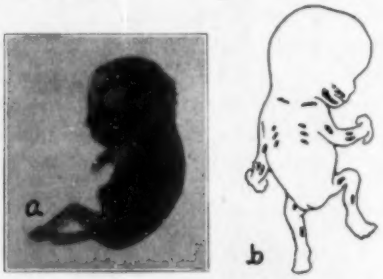

Fig. 4.—Roentgenogram (*a*) and diagram (*b*) of fetus at 8 weeks, actual size.

Eighth Week. Osseous development makes very rapid progress in the eighth week and a large number of centers of ossification becomes visible at this time.

The following bones show centers of ossification demonstrable in roentgenograms:

Skeleton of the head: Squamous portion of the occipital bone and superior maxilla. In the latter the ossification begins soon after that of the mandible, the center appearing above the region where the alveolus of the incisor tooth is later located.

Usually no centers of ossification are present in the axial skeleton in this week.

Shoulder girdle: In the scapula a center of ossification usually appears in the eighth week, sometimes in the ninth week. The center corresponds to the position of the middle of the spine of the scapula.

Upper extremity: The humerus is the first bone of the free extremities to show a center of ossification which appears in the diaphysis early in the eighth week. Radius and ulna follow in the order given, the centers appearing very soon after those of the humerus.

Ribs start in their ossification in the eighth week, an ossification center appearing in the region of the angle and extends slowly towards the vertebral column, but rapidly in the opposite direction. The fifth, sixth and seventh ribs which ossify first, are visible in this period. From this region the process of ossification progresses with equal rapidity both cephalad and caudad. The last rib to ossify is usually the first pair. Shortly before the first pair, the twelfth pair usually ossifies, but this is very iregular and we found it absent in several of our cases in old fetuses when other bones of the body and all the other ribs were very well developed.

Lower extremity: Centers of ossification may be occasionally seen in the diaphyses of femur, but usually they become visible in the ninth week. The femur is the first to show a center, the tibia starting in its ossification a little later, and the fibula follows very soon after the tibia.

Ninth Week. Portions of the hand and of the foot enter the stage of ossification, these being the most important new developments in this week.

The following additional centers of ossification are visible in the head: Inner lamella of the pterygoid process of sphenoid, mastoid portions of the temporal bone. The zygomatic process of the temporal bone begins to cast a shadow, its shape being somewhat pointed anteriorly and somewhat convex externally, thus resembling a needle. Bony trabeculæ are often seen in the posterior root of the mastoid process. The superior maxilla forms at this time a simple triangular plate, the base of which is parallel to the margin of the maxilla, the apex pointing towards the root of the nose. Malar bone may become visible towards the end of this week or during the next week.

Axial skeleton: Arches of all the cervical and upper one or two dorsal vertebræ show centers of ossification, usually no centers for bodies being visible. One center develops in each arch, the process beginning in the first cervical vertebra and proceeds caudally.

Shoulder girdle: Acromion process of the scapula begins to ossify.

Upper extremity: Terminal phalanges of all fingers begin to ossify in this week. The first beginnings of these centers are difficult to study in roentgenograms on account of their small size, but the later stages can be easily demonstrated. Development of the centers of ossification in terminal phalanges is followed by appearance of centers in metacarpals, which become visible in the ninth to tenth week. The following is the order of ossification in the metacarpals: Second, third, fourth, fifth, first, of which the second and third are usually visible in the ninth week.

Axial skeleton: Bodies of the vertebræ begin to cast shadows. The process starts in the bodies of the lower dorsal vertebræ progressing from this region with unequal rapidity in both directions. Usually lower ten dorsal and all lumbar vertebræ show centers of ossification in their bodies in this week. The process of ossification of arches progressing downwards, has affected usually all the thoracic vertebræ, being more or less advanced occasionally, invading often the upper lumbar region.

Shoulder girdle: Ossification of the scapula spreads to the supraspinous fossa.

Upper extremity: Diaphyses of basal phalanges of fingers develop centers of ossification,

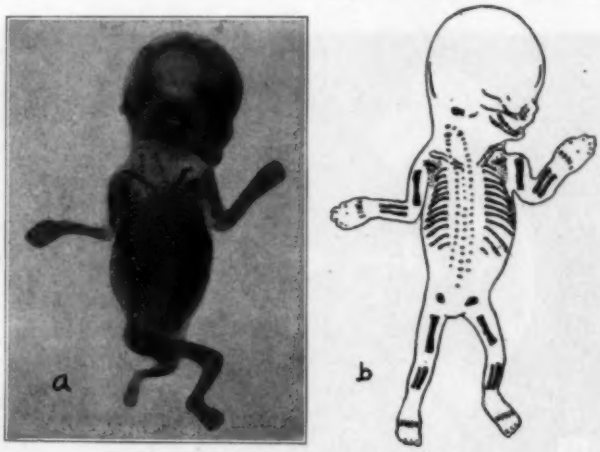

Fig. 5.—Roentgenogram (*a*) and diagram (*b*) of fetus at 10 weeks, actual size.

Ribs: All the ribs, except the first and the twelfth cast shadows.

Pelvic girdle: Illium usually appears in this week, rarely at the end of the eighth week. Ossification begins in the region of the greater sacrosciatic foramen and near the acetabulum.

Lower extremity: Centers of ossification in femur, tibia and fibula are seen. Centers begin to develop in phalanges, the first one being a center for the diaphysis of the terminal phalanx of the big toe. Diaphyses of the metatarsals follow in the same sequence and almost at the same time as corresponding portions of the hand, but with far less regularity.

Tenth Week. Comparatively few new centers of ossification are added in this week.

Skeleton of the head: Nasal bone, frontal bone show centers of ossification. Great wing of the sphenoid becomes visible.

the following being the sequence: The third, second, fourth, first and fifth. Of these usually the third only shows center in this week.

Ribs: At this time the ossification, as a rule, is seen in all the ribs, the twelfth behaving very irregularly and we found it absent in some comparatively old fetuses, far above the tenth week.

Lower extremity: Beginning with this week centers of ossification are present also in terminal phalanges of the second and of the third toe.

Eleventh-Twelfth Week. In this period almost as many centers of ossification are present in the fetal skeleton as at the time of birth, so that but few are added during the period of development folowing the third month and further changes in the fetal skeleton consist mostly of growth of the centers of ossification, of their fusion and of formation of internal structure of the bones. A fine, somewhat irregular medul-

lary cavity forms in the long bones, usually being seen first in the tibia.

Skeleton of the head: The tympanic ring usually becomes visible in this week, rarely at the end of the tenth week. In pictures taken from the side, its shadow lies between the angle of the mandible and the basilar portion of the occipital bone. Median lamella of the pterygoid process reaches considerable size and is visible as a hook-shaped, curved plate with concavity posteriorly, lying behind the lower portion of the perpendicular part of the palate bone. The malar bone joins the end of the zygomatic process of the superior maxilla and that of the temporal bone. Four centers are now present in the occipital bone. The anterior sphenoidal body begins to ossify.

Axial skeleton: Ossification of arches invades the lower lumbar region. The ossification of the bodies now appears in the lower cervical region and in the upper part of the sacrum, the intermediary bodies having been visible previously. There are, however, considerable variations in the time of appearance of centers of ossification in the sacral vertebræ.

Shoulder girdle: No new centers develop, the old ones increasing in size.

Upper extremity: Diaphyses of all the basal phalanges cast shadows. Middle phalanges of the third fourth and occasionally of the second finger develop centers of ossification in their diaphyses. The middle phalanx of the 5th finger ossifies much later. Up to the end of the third month the bony diaphyses of the humerus, radius and ulna remain longer and thicker than the corresponding bones of the lower extremity.

Pelvic girdle: Either in this period or shortly after a third center of ossification develops in the ilium, being situated ventrally from the fused first and second centers. There is a marked irregularity in the time of appearance of the third center of ilium, since occasionally it may appear almost three weeks after this time.

Lower extremity: Terminal phalanges of the fourth and of the fifth toe usually develop centers of ossification, in the fifth, however, the center may occasionally appear as late as in the thirteenth week. The bony diaphysis of the femur which up to this time has been shorter and thinner than the bony diaphysis of humerus, has almost reached the length of the latter, remaining, however, still somewhat thinner.

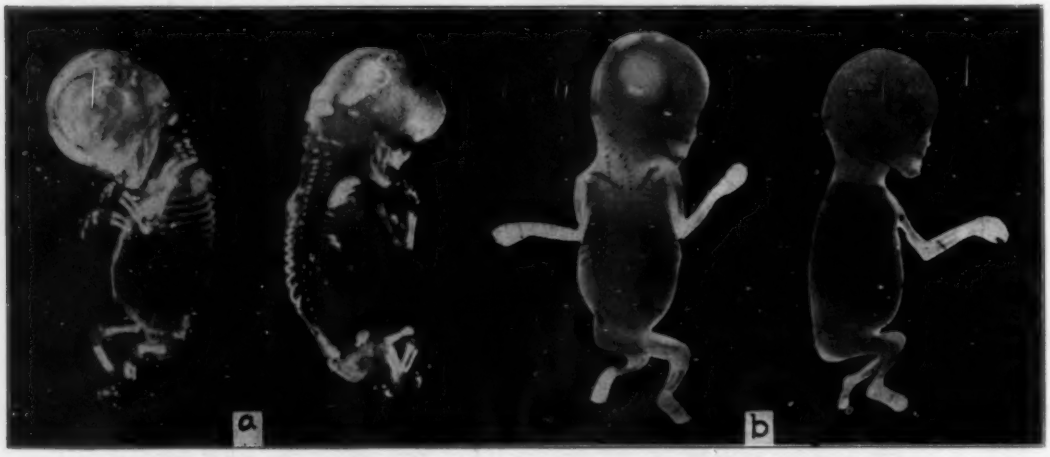

Fig. 6.—Photograph (*a*) and roentgenogram (*b*) of transparent specimens of fetus at 10 weeks, actual size.

Thirteenth-Sixteenth Week. Characteristic in the osseous development of this period is the appearance of structural arrangement in the bodies of some vertebræ and the presence of centers of ossification in the diaphyses of all the long bones of the hand and of the foot, except the middle phalanges of toes.

Skeleton of the head: Lesser wing of the sphenoid is visible at the beginning of this period. Posterior body of the sphenoid appears in about the fourteenth week.

Axial skeleton: At the end of this period all the vertebræ with the exception of 1-2 lower sacral and of coccygeal, have at least one center

of ossification. Arches are ossified also in the upper sacral region and bodies from the upper cervical down to the lower sacral region. Structural arrangement becomes visible in the bodies of some vertebræ. Upper and lower plate casting denser shadow becomes differentiated. A zone of lighter shadow is seen between these two plates and in the central portion of the body a flat darker shadow appears. The greatest diameter of this darker shadow corresponds to the longitudinal axis of the fetus in lumbar and lower dorsal vertebræ, in other dorsal vertebræ it lies horizontally. These shadows appear in the bodies of vertebræ in the region in which the center of ossification develops in the diaphysis of the terminal phalanx of the fifth toe, if it did not apear earlier. In the fourteenth week ossification in basal phalanges begins, first in the big toe and proceeds towards the fibular side in other toes and up to the end of this period it usually reaches the last toe.

Seventeenth-Twentieth Week. In this period bony labyrinth first appears and bone tissue begins to be formed in the rudiments of the milk teeth.

Skeleton of the head: Several new centers of ossification appear in the petrous portion of the temporal bone, but they do not show well in

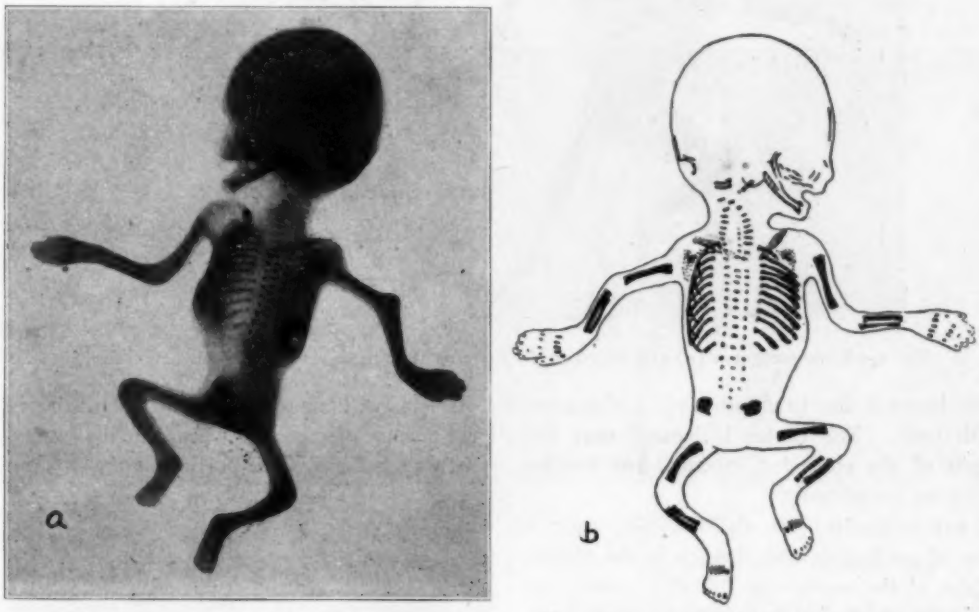

Fig. 7.—Roentgenogram (*a*) and diagram (*b*) of fetus at 11 to 12 weeks, actual size.

primary centers made their first appearance.

Upper extremity: In the fifteenth and sixteenth week a center of ossification appears in the diaphysis of the middle phalanx of the fifth finger, so that at this time diaphyses of all the long bones of the hand possess centers of ossification.

Pelvic girdle: At the end of this period or somewhat later a center becomes visible in the descending ramus of the ischium. Instead of one center two separate centers may develop in this portion of the innominate bone and they may remain separate for a long time afterwards.

Lower extremity: In the thirteenth week a roentgenograms. Bony labyrinth starts in its development. In the rudiments of milk teeth bone tissue begins to be formed and casts a shadow. The process starts in the lower incisors.

Axial skeleton: A center of ossification appears in the odontoid process of the axis. The darker shadows in the bodies of the vertebræ become more distinct and external formation and internal structure of osseous bodies of vertebræ become visible in roentgenograms. Ossification of the arches may reach the fourth sacral vertebræ at the end of this period although this frequently occurs later.

Pelvic girdle: The twentieth week is the earliest time of appearance of a center in the horizontal ramus of the pubic bone, this, however, varies between the twentieth and the twenty-eighth week. The center is located near the margin of the obturator foramen, two centers developing occasionally.

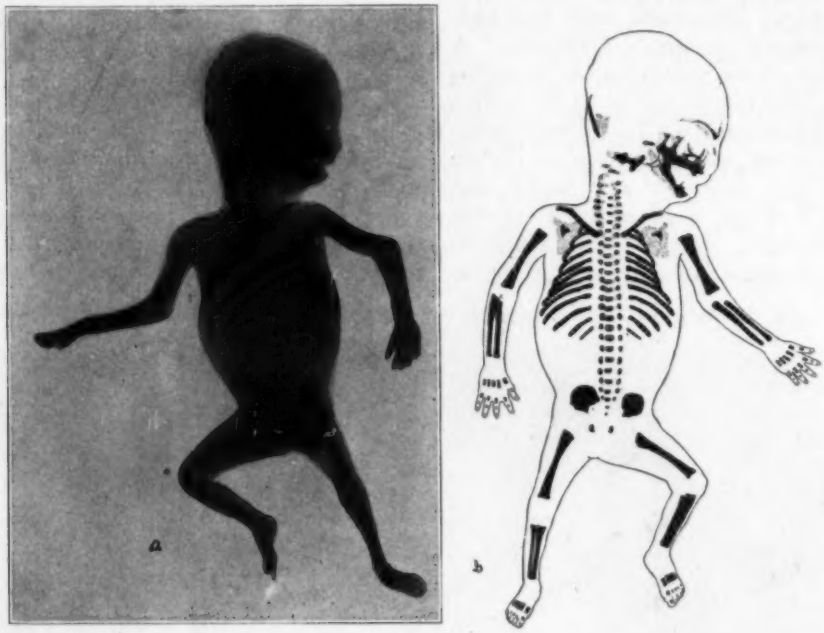

Fig. 8.—Roentgenogram (*a*) and diagram (*b*) of fetus at 13 to 16 weeks, one-half actual size.

Lower extremity: In the twentieth week a center of ossification may develop in the middle phalanx of the second toe, but this usually occurs in the twenty-first to the twenty-fourth week and frequently even later than this. On the whole, there are marked differences and also individual variations in the time of appearance of centers of ossification and also in the sequence of ossification in the phalanges of toes, especially in the basal phalanges and even more so in the middle phalanges. In the hand, however, the sequence of ossification in the phalanges is far more constant and the time of appearance of the centers is much less changeable than that of the centers in the phalanges of toes.

Twenty-first-Twenty-fourth Week. In this period ossification usually starts in the tarsus, os calcis being the first to show a center of ossification. Sternum begins to develop by several centers of ossification, but there are considerable variations in the arangement and size of these centers and also in the time of their appearance.

Skeleton of the head: Superior maxilla shows large amount of spongiosa. Towards the twenty-fourth week the alveolar portion of the superior maxilla begins to overhang the level of the palatal plate, but develops as a real process only during cutting of teeth.

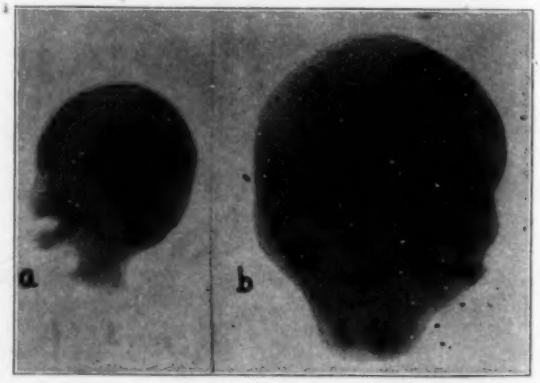

Fig. 9.—Roentgenograms of skull showing ossification centers at (*a*) 11 to 12 weeks, and (*b*) 13 to 16 weeks actual size.

Axial skeleton: Costal process of the sixth cervical vertebra starts in its ossification. Shadows of transverse processes are seen in vertebræ down to the twelfth dorsal.

Upper extremity: In this period the ossified portion of the diaphysis of the humerus reaches articular ends and begins to overlap these so that at the distal end of humerus become visible both fossæ (olecranon fossa and cubital fossa) and ulna and olecranon, and later on proximal end of the humerus an indication of medial and posterior portion of the neck appears.

Sternum starts in its ossification. Usually one

Twenty-fifth-Twenty-eighth Week. The rudiments of all the milk teeth have entered the stage of ossification in this month.

The development of the transverse processes of vertebra progresses down to the last lumbar vertebra. At the end of this period a center of ossification may develop in the lateral masses of the first and of the second sacral vertebra. The body of the fifth and the arches of the fourth sacral vertebra become ossified at this time, rarely earlier.

A center of ossification develops in the astragalus.

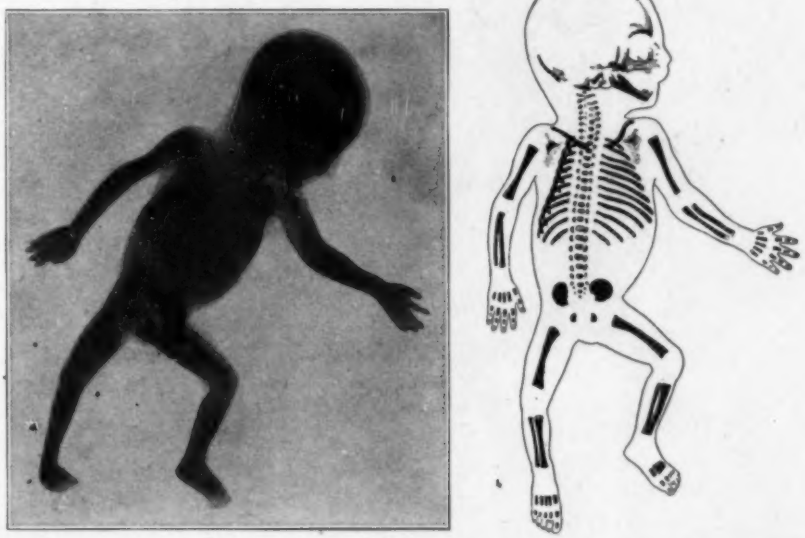

Fig. 10.—Roentgenogram (*a*) and diagram (*b*) of fetus at 17 to 20 weeks, one-third actual size.

center forms in the manubrium first and this is followed soon afterwards by several centers in the body of the sternum. The centers form a longitudinal row first and soon they assume a round or elliptical form. Not seldom the first centers of ossification appear in the upper part of the body between the second and the third costal cartilages. The position of ossification centers of the sternum corresponds usually to the level of the intercostal spaces.

Lower extremity: A center of ossification develops in os calcis, its appearance being occasionally delayed by from four to eight weeks. Sometimes it is followed by appearance of a center in the astragalus. Middle phalanx of the second toe and occasionally that of the third toe acquire a center of ossification in their diaphyses.

In horizontal ramus of pubic bone the center may develop as late as this period.

Twenty-ninth-Thirty-second Week. Greater cornua of the hyoid bone usually become visible, appearing as cone-shaped processes directed obliquely upwards at the level of the second cervical vertebra.

Lateral masses of the first and of the second sacral vertebra ossify usually at this time.

In the sternum three or more large centers of ossification are visible.

Middle phalanx of the fourth toe frequently starts in its ossification during the period.

Thirty-third-Thirty-sixth Week. This period is the earliest time at which the first epiphyseal center may appear, that of the distal epiphysis of

femur. Usually, however, this center appears later, at about the time of birth.

Costal processes of the sixth and of the fifth cervical vertebræ start in their ossification.

Thirty-seventh-Fortieth Week. Middle turbinate ossifies at the end of the fetal period and shortly before birth the rudiments of the first permanent molar teeth begin to ossify.

Costal process begins to ossify in the fourth, the third and the second cervical vertebræ; the first coccygeal vertebra usually ossifies during the last week before birth and vertical arrangement

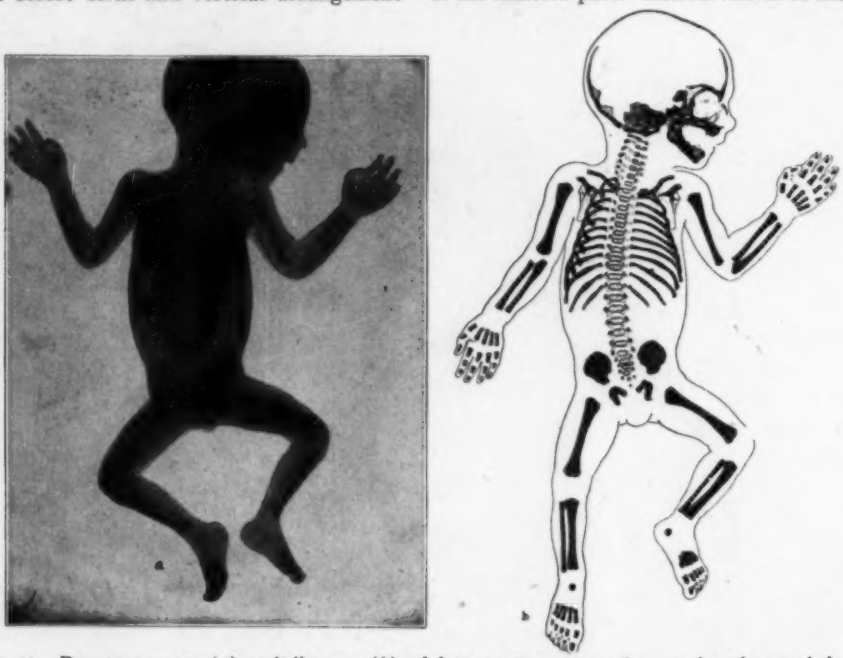

Fig. 11.—Roentgenogram (*a*) and diagram (*b*) of fetus at 25 to 28 weeks, one-fourth actual size.

of trabeculæ becomes visible in the bodies of vertebræ.

A center of ossification appears in the proximal epiphysis of tibia just before birth in a majority of cases and ossification in the cuboid frequently starts before birth, usually by several centers, although in some cases it may not be visible even in the newborn.

The Newborn. A center of ossification in the distal epiphysis of femur is so frequent in the newborn that Lambertz (loc. cit.) calls it a sign of maturity. This is frequently the only epiphyseal center present in the newborn. Poirier[17] gives a summary of the literature on the time of the appearance of the epiphysis at the distal end of femur. Schwegel found it to appear between birth and the third year. Casper in the ninth fetal month. Hartmann found it lacking in 12 per cent. of cases at birth and in 7 per cent. of cases present as early as the eigth fetal month.

The four parts of the occipital bone (basilar, two lateral and the squamous) are separated from each other by thin layers of cartilage. Mastoid portion of the temporal bone is not ossified in its entire extent, a serrated line marking the boundary between bony and cartilaginous portion of the mastoid part. Lateral halves of the frontal bone are separated. Body of the hyoid bone is usually ossified. Both halves of the mandible, as a rule, are united by connective tissue.

Vertebræ are ossified in all their essential parts, including transverse and articular processes of arches, but the centers of ossification are separated from each other by cartilage. The first coccygeal vertebra is usually ossified by this time.

In some cases the proximal epiphysis of humerus is ossified. In the hand all bones are ossified, except the carpus, in which centers of ossification in os magnum and unciform may be seen only very rarely.

At the time of birth the ossified portion of the os pubis surrounds usually a portion of the anterior boundary of the obturator foramen, but

the region of the symphysis and upper margin of the horizontal ramus of os pubis remain cartilaginous. The following portions of the innominate bone are not ossified in the newborn: The crest of the ilium with superior spines, acetabulum, spine of ischium, ascending ramus of ischium.

The middle phalanx of the fourth toe is frequently, that of the fifth toe always cartilaginous in the newborn, in the fourth toe, however, the middle phalanx may start in its ossification in the eighth fetal month. The following portions of the leg are usually not ossified in the newborn: proximal epiphysis of tibia and of the fibula, epiphyses of metatarsal bones and of phalanges, the cuboid, the three cuneiform bones.

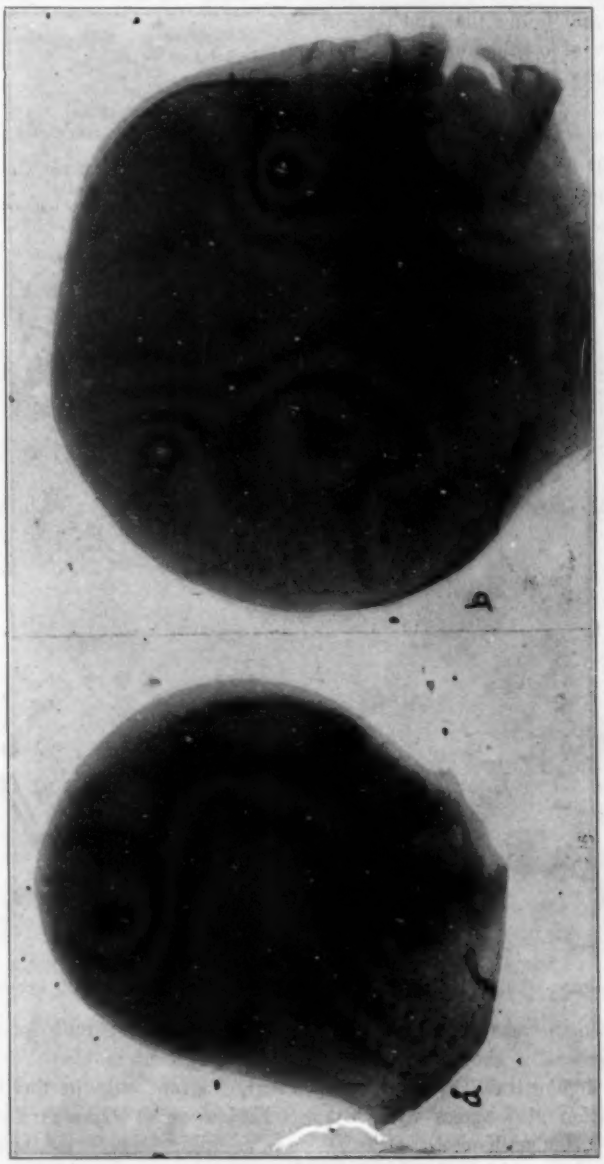

Fig. 12.—Roentgenograms of skull of fetus showing ossification centers at (*a*) 17 to 20 weeks and (*b*) 25 to 28 weeks, actual size.

OTHER METHODS OF STUDYING OSSEOUS DEVELOPMENT COMPARED.

We have compared the process of ossification, as observed in the roentgenograms of the fetuses studied by us with the roentgenographic studies of Alexander[18], Bade[19], Hasselwander[20] and Lambertz (loc. cit.) and found that the time of appearance of centers of ossification pretty well agrees, in general there being minor differences only.

Compared with the studies of Mall who used transparent specimens of embryos and fetuses for observing the appearance of centers of ossification, we find that by using transparent specimens he was able to demonstrate the minute centers of ossification generally about one week earlier before they are demonstrable by roentgenograms. This observation also agrees with text books of anatomy (Rauber-Kopsch, Gray[21]) which we have consulted for this purpose and we find that they place the time of appearance of various centers about one week ahead of the time at which the centers cast shadows in roentgenograms large enough to be visible.

By courtesy of Dr. Roy Lee Moodie of the Department of Anatomy of the University of Illinois, we obtained transparent specimens of a pair of twins from his embryological collection and made roentgenograms of the same. By studying these roentgenograms and specimens we found the following differences:

	Roentgenograms	Transparent specimens
Basal phalanges of fingers	3rd	2nd, 3rd, 4th
Terminal phalanges of toes	1st, 2nd, 3rd	1st, 2nd, 3rd, 4th
Bodies of vertebrae	9 lower dorsal	9-10 lower dorsal resp.
	all lumbar	all lumbar
	1st sacral	1st, 2nd sacral
Arches of vertebrae	upper 3 lumbar	upper 3 to all lumbar resp.

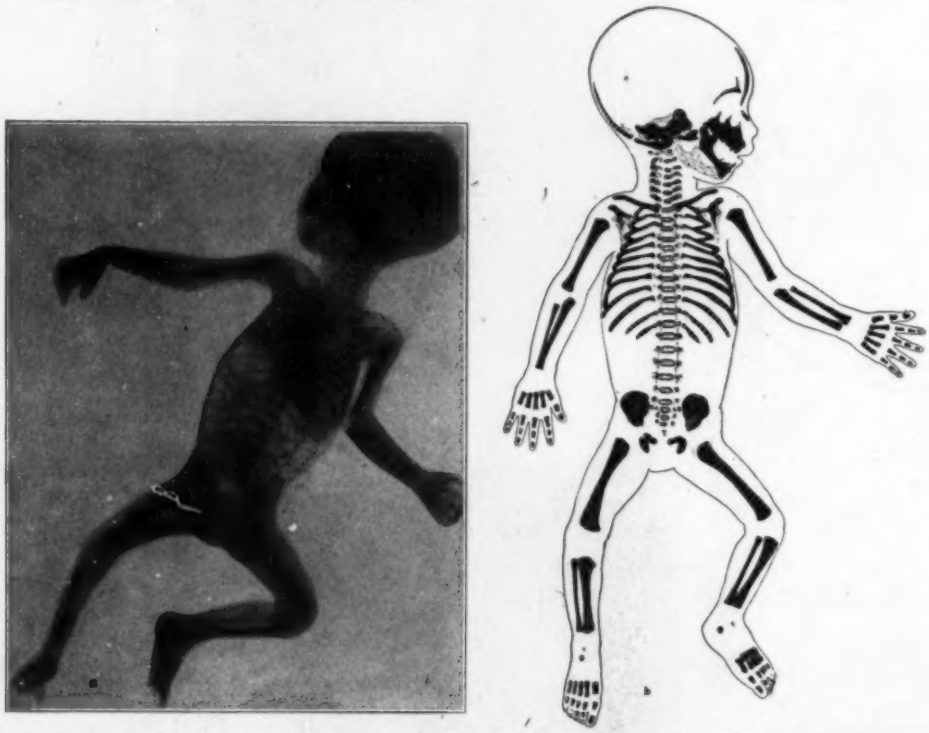

Fig. 13.—Roentgenogram (*a*) and diagram (*b*) of fetus at 29 to 32 weeks, one-fourth actual size.

Thus the transparent specimens show in the 10th week centers that become visible in the roentgenogram only in the 11th to 12th week.

Variations in Osseous Development. There are, as might be expected, some variations in the normal process of ossification and it is also influenced by pathological conditions of the mother and of the fetus (e. g. syphilis, rickets, osteogenesis imperfecta, etc.). In general these pathological processes may well be diagnosed in the roentgenograms so that an error may easily

be prevented. In some portions of the skeleton the ossification is less regular than in others, and as a general rule, the more caudad the portions of the skeleton are, the more they are subject to variations in the process of ossification and the centers which develop at a later period of fetal life are also more variable. Thus there are considerable variations in the time of appearance of centers of ossification in sacral vertebræ. Foot, as a general rule, is unreliable as an indicator of the age of the fetus. The ossification of the sternum is also irregular in the time of appearance, size and arrangement of the centers of ossification. The 12th rib is also very irregular and we found it absent in roentgenograms of fetus from 13th to 16th week and also in some other older ones, although, as a rule, the 12th rib appears in the 10th or in the 11th week. Some of the centers, although being demonstrable by careful examination, are so small as to be easily overlooked and this may lead to an error. For this reason it is necessary to know what centers we could expect at the particular age of the fetus and we should look for them in good light with a magnifying glass.

Bade (loc. cit.) has examined roentgenograms of twin fetuses, one of which was 5.8 cm. long, weighing 8 g. and the other 6.3 cm. long weighing 11 g. The only difference in the stage of ossification was that the larger fetus showed two more centers in arches of vertebræ and two additional centers in terminal phalanges of fingers.

In a fetus 7.1 cm. long and weighing 25 g. the same author found, however, that the ossification did not progress as far as in the above mentioned twins which were shorter. This delay in ossification was in the ribs (the last one not being visible, although all visible in the twins), while the axial skeleton showed only 5 bodies and 21 arches, as compared with 18 bodies and 22, respectively, 24 arches in the twins.

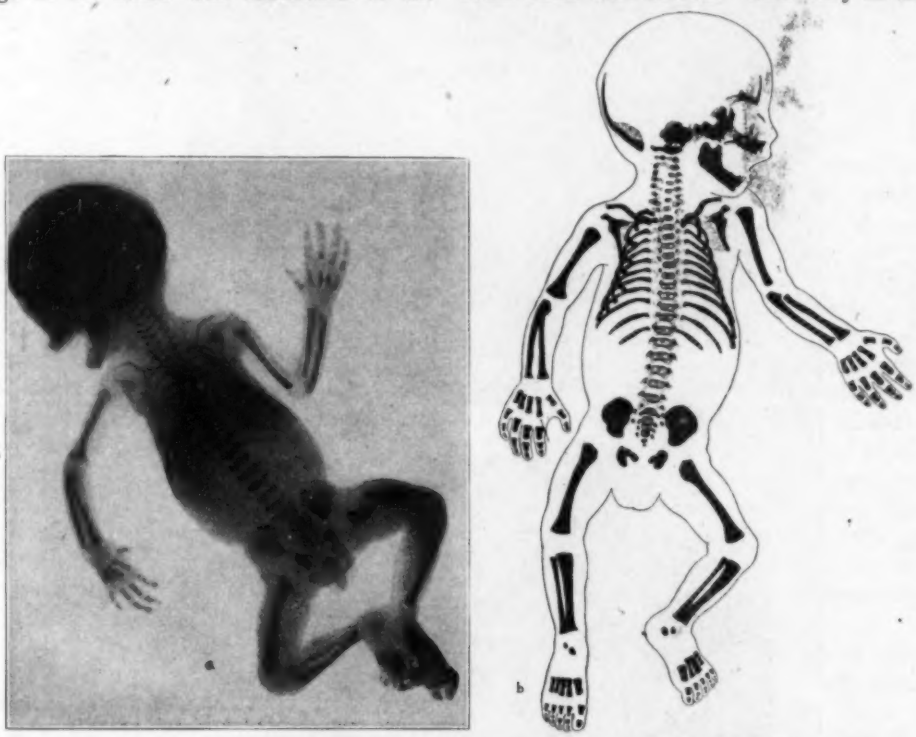

Fig. 14.—Roentgenogram (*a*) and diagram (*b*) of fetus at 33 to 36 weeks, one-fourth actual size.

Alexander (loc. cit.) found that while the ossification has been normal in other parts of the body, it has been occasionally delayed in the vertebral column.

He observed also twin fetuses measuring 8.9 cm. and 9.1 cm. in length respectively. The only difference in ossification in these two fetuses was that in the larger one there was an ossification center in the 3rd sacral vertebra, while in

Fig. 15.—Roentgenograms of skull of fetus showing ossification centers at (*a*) 29 to 32 weeks and (*b*) 33 to 36 weeks, actual size.

the shorter one the 2nd sacral vertebra was the last one containing a demonstrable center.

In the twins from Dr. Moodie's collection which we have studied, the only difference in the stage of ossification are in the axial skeleton, one fetus showing centers for 17 bodies and 24 arches on each side and the other only 15 bodies and 22 arches on each side.

But in spite of these variations the process of ossification seems to be more constant for a particular age than the length of the fetus. Mall in his article on ossification in embryos up to 100 days old (22) concludes that "the remarkable regularity of the appearance of the bones makes of them the best index of the size and of the age of embryo we now possess."

Limitations of Accuracy. In the first half of pregnancy the estimation of the age of the fetus may be done with more accuracy because many more new centers appear in the first months and also because the time of appearance of the earlier centers is more constant. In later months centers of the lower part of the skeleton mostly are available for study and these are less constant in the time of their appearance. We have intentionally made our groupings broad enough to cover minor errors in diagnosis, but more careful subsequent studies may refine the diagnosis to such a degree that determination of age will be possible within the period of one week in the first half of the pregnancy and within two weeks in the second half of the pregnancy.

Different Values of the Different Portions of the Body. In the very early period (second month) the stage of ossification of clavicle and mandible is of chief importance and on the basis of presence or absence of these centers determination of the age is made. Both roentgenograms and transparent specimens show that the time of appearance of these centers is almost constant, which makes them of cardinal value in diagnosis.

Next in importance are the centers of the upper extremity and especially of the hand (metacarpals and phalanges) which are very regular not only in the time of their appearance, but also in their sequence. The ossification of the diaphyses of the long bones of the arms extends from the 8th to the 16th week and during this period the determination of the age may frequently be done from a good roentgenogram of the hand alone.

The progress of ossification of the hand is also of considerable diagnostic importance, but the centers in many bones of the head are very difficult of demonstration. Those, however, that can be well demonstrated, are of much value in determination of the age. This is especially true of the occipital bone, superior maxilla, tympanic ring, nasal bone and hyoid bone.

The axial skeleton (the vertebral column) is much less reliable than the above named portions of the skeleton and especially its lower portion is of little value in diagnosis of age. It is not the absolute number of arches or of the bodies ossified which decides the diagnosis as to the age of the fetus, but more the region involved and the extent of the development in the particular region of the vertebral column (cervical, dorsal, lumbar, sacral). On the other hand, however, the fact that the process of ossification of the vertebral column extends from the 9th week throughout the fetal life and all its centers, as a rule, are well demonstrable, make it of especial value for at least approximate determination, although it must not be forgotten, that occasionally the process of ossification may be delayed in the vertebral column, while it is normal and regular in other portions of the body.

Sternum is unreliable as an index of age and its centers are frequently difficult to demonstrate. The ribs are fairly constant, except the 12th pair which, as previously mentioned, may not show at all in roentgenograms of comparatively old fetuses.

While the ossifications of the long bones of the legs are pretty regular, since they appear at an early period, ossification in the foot is very irregular and the stage of ossification of the foot is of little value in the determination of the age of the fetus. The osseous development of the foot extends from the 9th week to the end of the fetal period (not being, however, completed even at this time) and during this time there are very marked variations, especially in the centers which appear late in the fetal period.

From the above it may be seen that, as a general rule, the earlier a center appears the more regular it is and since the process of ossification starts in the cephalic region and spreads caudally, it is also true that the more caudad a skeletal segment is situated the more it is subject to variations and irregularities.

Advantages of the Roentgenographic Method.

The peculiar advantage of the roentgenographic method of the determination of the age of the fetus lies in the fact that while in determination of age according to the length we base our final conclusion usually on one, rarely on two or three measurements expressing different lengths of the fetus, in roentgenographic method many centers of ossification are the factors taken into consideration before arriving at a final conclusion and they act as check on each other and quite frequently the roentgenograms alone give us information as to whether the fetus is normal or not, a point which seldom may be determined from measurements alone.

Technic. In studying the roentgenograms it is well to use a reading glass of about 4 inches in diameter, since some centers of ossification may be so small as to be very easily overlooked when looked for with the naked eye.

If only one exposure of the fetus is made, then the best position to show as many ossification centers as possible is as follows: The back lying flat on the plate, head turned completely to one side so that lateral side of the head lies on the plate and lateral exposure is obtained. (It should be remembered in the study of the skull that both halves of the skull are usually visible.) Arms should be extended and fingers spread as far as possible from one another. One hand should be pronated and the other supinated, the lateral exposure, which is often of so much value in roentgenograms taken for the purpose of surgical diagnosis, not being of much value, since in this position shadows of phalanges of fingers and of metacarpals are superimposed and cannot be well differentiated. Legs should also be extended and feet also put into such a position that all metatarsals and phalanges are shown.

CONCLUSIONS.

1. The stage of ossification of the skeleton of the fetus as observed in the roentgenograms is of considerable practical importance in determination of the age of the fetus.

2. The roentgenographic method of determination of the age of the fetus is more reliable than determination of age based on length and other measurements, since osseous development is more regular, offers many more factors for consideration, one part of the body is criterion of normality for the other parts of the body and pathology may often be readily recognized.

3. In early months more accurate determination is possible than in the later months and the roentgenographic method is undoubtedly capable of much more refinement by further studies and observations.

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MALARIA.*

J. W. Barrow, M. D.

CARBONDALE, ILL.

In the catalogue of diseases malaria is one of the oldest and still one of the most remarkable. Osler says:

No infection except perhaps tuberculosis compares with it in the extent of its distribution or its importance as a killing or disabling disease.

In 1908 there were in the Punjab, India, over three million deaths from fevers, a large proportion from malaria. In the months of October and November there were over 300,000 deaths from malaria alone.

In the same year there were nearly one thousand deaths from malaria in Alabama and in the year following, the great health resort, California, ranked second in its death rate from malaria among the states in the registration area which excluded Illinois and most of the badly infected southern states.

*Read before the Southern Illinois Medical Association, November 1, 1917.

Its etiological history as detailed by Osler is extremely interesting. It began in 1880 with the discovery of the parasite by the French army surgeon, Laveran.

In 1885 Marchiafava and Celli described the parasite with great accuracy and in the same year Golgi made the all-important observation that the paroxysms of fever invariably coincided with the sporulation or segmentation of a group of the parasites.

The next important observation was the discovery by Golgi that the parasite of quartan malaria differed from the tertian.

In 1889 Marchiafava determined that the organisms of the severer forms of malaria differed from the parasites of the tertian and quartan.

Manson was the first to formulate in a clear and scientific way the theory of infection in malaria by the mosquito.

Then came the practical demonstration by Italian observers and by the interesting experiments on Manson, Jr., of the direct transmission of the disease to man by the bite of the infected mosquitoes.

And lastly, as a practical conclusion of the whole matter, the anti-malarial campaigns, so energetically advocated and carried out by Ross, have shown that by protecting the individual from the bite of mosquitos by exterminating the insect or by carefully treating all patients so that no opportunity may be offered for the parasite to enter the mosquito, malaria may be eradicated from any locality.

The life of the parasite in man and again in the body of the mosquito, while profoundly interesting, is too well known to this audience to warrant a review.

We are fully conversant with all of these remarkable phases of malaria. We know the well marked lines of procedure in eliminating this disease, yet I believe many physicians underestimate the bearing that malarial fever has on their individual practice.

I believe every general practitioner of southern Illinois should weigh carefully the following points: First, he should know rather accurately the extent of malarial infection in his particular field. There will be found certain streams, ponds or marshes near which the residents will be in an almost chronic state of infection. It will be a great help in diagnosis and treatment if these areas are fairly definitely charted. Second, he should clearly realize the disabling effect on community life. Out of less than one hundred men, Co. E, Carbondale, who did guard duty recently at East St. Louis, thirty came down with malarial chills and fever. The railroads of southern Illinois, in this crucial time, are very considerably hindered because of malaria among their employes. Third, the confusing element projected into the problem of diagnosis. How frequently malaria clouds the diagnosis of typhoid fever, puerperal sepsis, the contagious diseases and others. And fourth, the difficulties attending efficient treatment. Very few realize the serious nature of chronic malarial infection.

What should our attitude toward the mosquito and malaria be in southern Illinois?

I think that this meeting should favor a comprehensive, state-wide mosquito and malaria survey carried out under the direction of the State Board of Health and the University of Illinois.

In March, 1916, the State Board of Health of California, in conjunction with the University of California, decided to make a state-wide survey of malaria and mosquitoes under the direction of Prof. W. B. Hermes. It was carried out in part last year and likely completed this year. I wish to quote at length from Mr. Hermes' report of 1916.

The object of the survey was threefold, first, scientific, in that an accurate knowledge of the specific occurrence and distribution of mosquitoes and malaria was desired; second, economic and remedial, in that accurate information relative to the breeding places of the Anopheline species was needed in order that definite and practical suggestions for control could be offered; and third, educational, in so far as literature was distributed, lectures were given, conferences were held and much personal work was done among the ranchers. The objectives of the survey defined from the very start the methods pursued in our survey. The itinerary of each trip was prepared in advance and adhered to very closely. Adult mosquitoes were easily located in their hiding places during the day, commonly under bridges, in culverts and in outhouses. By the use of cyanide bottles made of shell vials representative collections were made. After collecting them they were at once placed between cotton wadding in small pill boxes, each box given a number which corresponded to a number on a map. Breeding places were then located, descriptions were made and photographs taken in many instances. Ordinarily this peculiar performance attracted attention and soon one or more individuals were being told the object of our work. Health officers and other public officials were frequently taken into the field and given lessons in the recognition of mosquito larvæ, particularly the Anophelines, and were given suggestions for control. In nearly all communities resident physicians were consulted relative to the occurrence of malaria in the vicinity and blood smears were examined wherever available. Public lectures, previously scheduled, were frequently given, usually illustrated with local material.

RESULTS OF SURVEY.

We now have without doubt a very complete col-

lection of the species of mosquitoes occurring in northern California and by the time the survey is finished a unique representative collection of these insects will be at hand such as few, if any, of the larger states possess. The specimens are being properly mounted and a card index of localities is being prepared so that information relative to the occurrence of mosquitoes in a given locality can be quickly and accurately ascertained. Our knowledge of the geographical distribution of the Anophelines has been greatly amplified. One or more of the specimens of Anopheles was encountered in all but one northern California county, and we were able to find numerous specimens of Anophelines, also located their breeding places, at an elevation of 5,482 feet (this at Sierraville).

We were even more impressed than ever that the Anopheles mosquito as a real menace to health does not wander far from its larval habitat, and that with the discovery of Anophelines their breeding place may be located within a very few rods of this point.

While the survey has revealed the fact that Anopheline mosquitoes are more widely distributed than was at first believed to be the case, and that consequently the malaria menace is also greater, we are no less positive in our belief that malaria can be brought under control. It is, however, a matter of detail, intensive rather than extensive. For example, a small overlooked pool of water, originating from a tiny stream beneath a fruit-packing house, may produce ample Anopheles mosquitoes to distribute malaria among the employes who may work toward evening during the rush season, or larvæ may occur in an open spring which supplies drinking water for the nearby fruit-picking camp, etc. The successful operation of malaria campaigns calls for specially trained men.

I believe we should use the means at hand to establish more clearly the diagnosis. How many cases we call malaria that are something else, and how frequently we fail to recognize malaria concealed in some strange clinical garb.

I believe in the routine use of the microscope in suspected cases. In my St. Louis city hospital interne work I have often taken a drop of blood from a patient still on the stretcher and found the plasmodia in less time than the patient could be put to bed, thus clearing up the receiving doctor's provisional diagnosis of typhoid fever in less than five minutes.

Lastly, I am coming to believe more fully in the use of quinine in suspected cases. I believe it should be given in large doses and for sufficient time to cure the chronic malarial carriers.

I wish in closing to offer a resolution, but before doing so I shall read a letter from Prof. Forbes, University of Illinois.

I now move you, Mr. President, that it be the sense of this meeting, that we request the State Board of Health and the University of Illinois, to undertake a survey of the mosquito and malarial problem of Illinois.

OBSTETRICS IN COUNTRY PRACTICE.*

J. S. Templeton, M. D.

PINCKNEYVILLE, ILL.

We do not often see articles in our medical journals on this very important subject. Just why so many of our prominent physicians and surgeons consider this part of our work so unimportant is hard for some of us to understand. True, the obstetrician of the city occasionally gives us a short article on some case of ectopic pregnancy or Caesarean operation. While we read them with pleasure and profit, they are difficult for us to carry to the bedside of the obstetrical case five or ten miles out in the country, where we have only such instruments as we can carry in an obstetrical bag, no sanitary bed, no trained nurse, and, in fact, few of the conditions surrounding the fellow that writes the articles mentioned. This paper will probably only interest those who, like ourselves, are accustomed to answer the midnight, or call of any other hour to the bedside of some suffering woman, perhaps the wife of only a year; but a home has been started, plans for life have been made, and for months past this event has been looked forward to with mingled joy and sadness, fully conscious of the dangers and pain of labor, but willing to undergo all for the sake of becoming a mother. It may be the home of the mother and mainstay of a large family of small children. Whose life then could be of more worth? Why treat the subject with any but the greatest respect, where such lives are at stake? True, that few mothers of late years die during or soon after from the effect of full term labor. But I do believe that there is no other field today where care and skill can save more lives. It should not and will not be many years until the physician who has to contend with ordinary conditions only, will feel disgraced if one of his patients has puerperal convulsions, puerperal fever or any preventable complication of labor, and while post-partum hemorrhage is not so easily prevented, we hope it will not be long until that too will be easily

*Read before the Southern Illinois Medical Association, November 1, 1917.

overcome or controlled with certainty in every case. Usually when called to the bedside of a sick person but one life is dependent upon our skill, but in these cases two are placed in our care, both depending upon our skill and integrity for a further lease on life.

In my experience with nearly a thousand cases some difficult ones should not have been so, but I shall frankly report all that seem to me will be profitable to the profession and humanity. As we review these cases there is no time or place for charity among ourselves, we are taking up the subject for the good of mankind and to neglect it when so much happiness depends upon our ability and care would be little less than willful murder.

Case 1. My record shows a slow, normal birth, both mother and child did well. The only abnormal thing to contend with was the obstetrician himself, for while he was not a total stranger to such affairs, he had not had the training that he should have had, and such as is rightly required of all graduates of accredited medical colleges today. However, Nature favored him and none present ever knew how strange he felt or how much he learned while he was earning this first ten dollars. The baby was finally born, while the mother sat on the husband's knee, and while instruments may be sometimes unnecessary, they would have no doubt been of benefit to both mother and child in this case, saving time and of less danger than the delay.

Case 2. Though normal, was another corker to the embryo M. D. The fontanelles did not seem to be in their normal position. The occiput was neither in R. O. A. or L. O. A. Several examinations and much study took place during the first hour. Finally the breech could not be mistaken for any other part of the child and labor proceeded in a satisfactory manner, successfully passing all dangerous land marks for mother, child and physician.

Case 3. A normal birth, but the placenta was retained and caused much worry to both mother and attendant. Nothing seemed to avail and three teaspoonfuls of ergot was given in the hope that it would be effective. Eventually success followed our many efforts, but soon after the mother complained of a severe headache, probably due to the ergot. Since that I have learned to apply the Credé method and believe it to be superior to all others. Also have learned not to hurry the placenta unless there is hemorrhage or some other symptom requiring haste.

Case 4. An instrumental delivery and one thing worthy of note was that I had an assistant give the chloroform, something I do not always do now. It is a question in my mind if any of us should make a business of administering chloroform and deliver difficult cases alone.

Case 11. Hydrocephelic head and breech presentation, body was delivered normally, but head was retained for some time and had to become elongated before being born, did not recognize condition until complete delivery which probably took over an hour's time after delivery of breech.

Case 27. Baby died of an infected umbilical cord. Methods used in care of this cord are not recorded, but am sure that had either moist dressing of carbolated vaseline or dry dressing of some good antiseptic powder been used, such would not have occurred: at least it has not in over nine hundred cases since.

Case 38. Was called about 3 a. m., found patient suffering, but no dilatation; said it was not time for labor. Morphin hypodermically gave relief for a few hours, when pains returned. Patient was very nervous and dilatation was slow. About twelve hours after pains first commenced puerperal convulsions occurred and delivery was accomplished immediately with chloroform and instruments. Child died, but mother had an uneventful recovery.

Before going further I want to say that a physician engaged to care for a case of labor and does not make a urinalysis is quilty of criminal neglect and should be dealt with accordingly.

Case 51. A placenta praevia, and if same conditions confronted me today as then, I would probably do the same. Deliver with forceps or version and save the mother. Pregnancy was only seven months advanced and the child died. However, I have carried some placenta praevia cases to full time.

Case 52. A normal presentation and upon examination no abnormal conditions were found. Dilatation was slow and ¼ grain morphin was given hypodermically. The patient rested for some time, probably two hours, the pains returned and had apparently been coming normally for two hours, when she complained of pain on one side of her head, not severe, however, and little attention was given it until she became sleepy again, and on closer examination the pupil of one eye was found to be much larger than the other. Deep coma soon came over her, instruments were immediately used, and a dead child delivered, the mother dying less than an hour afterward undoubtedly from brain embolus. There was nothing unusual in the beginning of this labor and the pain had only been in progress half a day when the fatal conditions appeared.

Case 59. Multipara, normal pelvis, head became impacted, in occipated posterior. Pains were normal, but from the beginning made slow progress and finally ceased to affect the head. Used instrument and made a successful but difficult delivery. Nothing especially significant about this case, but I realized that lives of mother and child were endangered by such a delivery. Had the child been a little larger or the pelvis contracted, there would have been serious trouble, and I have observed several times since that the child turned in the lower curve of the pelvis and was normally delivered. Hence while we cannot expect a favorable turn in every case, I believe we should be slow to attempt forcep delivery in all

occipito-posterior cases that we cannot right by external manipulation.

Case 92. Primipara, shoulder presentation; dilatation was very slow and it was twelve hours before a version was attempted, but no impaction occurred. After administering chloroform to complete anesthesia the os was sufficiently dilated to allow introduction of hand, but the obstetrician was alone, and had to superintend the giving of the chloroform and deliver the child at the same time, and again made undue haste, and while bringing down the feet a leg was broken about the middle third of the femur. Little was said and explanations were of a general nature in regard to the child's affliction. A splint was applied at once and next day a plaster cast which was allowed to stay on for four weeks and the child today is a strong boy without any evidence of the perilous journey into this world. This is one fracture bill that was never collected, not even charged.

Case 345. Mother of two children contracted pneumonia when she was about eight months pregnant. Had usual chill and high fever with severe pleural complications. She was given ordinary pneumonia treatment and on fourth day was delivered of a still-born babe, nothing unusual about the delivery, normal amount of blood flow. Temperature at once dropped to normal, remaining so for a few hours, when it gradually rose again, going as high as 105 degrees. Discharges became offensive and vaginal douches were resorted to without apparent effect. An intrauterine wash was then used with return flow, metal catheter and weak iodine solutions, which not only relieved the offensive odor, but reduced the temperature every time. Once while using, patient complained of sharp, severe pain in abdomon, severe rigors and hard chill following. Hot applications relieved pain and recovery from pneumonia and treatment were afterward uneventful.

Case 365. Was called in the afternoon and found patient suffering light pain, gave small dose of morphine sulphate hypodermically and pains were lessened, but not relieved, so allowed labor to proceed and as soon as dilatation would at all permit, gave anesthetic and attempted to deliver. Had an assistant who reported when he saw the patient that he had been called two years before to assist another physician to deliver the same woman, and that they had all kinds of trouble delivering her. Failed to save the babe and almost lost the mother. After two hours' hard work we delivered a live baby and the mother finally recovered, but neither of us ever wanted to go through such an ordeal again. We never had the instruments properly adjusted and several times they slipped off, the first blade placed seemed to catch over the occiput of the child and the second over the brow; whether it was the subject or operator at fault I could not determine. Some two years later this same woman was pregnant again and you may imagine my chagrin when told of it. One thing I determined if called and that was not to attempt a delivery until Nature had done all it could. When called labor seemed to be coming on about the same as before, so I began at once with ⅓ grain of morphin and 1/100 grain atropine, which relieved her for the night. The next morning, Tuesday, I repeated the dose, again in the evening, and so on morning and evening until Friday, but each day I could tell the os and other tissues were becoming more relaxed. Friday afternoon they called about five o'clock reporting that her pains were returning and harder than before. I had supper and leisurely strolled down to the house to find the head in the vulva, and in a short time a very normal labor. The child was smaller than the first one, but I cannot help feeling that in the first case we were too much in a hurry, and though abused by the neighbor women I felt repaid for the time and trouble of waiting it out this time. Since that one case has come under my care that required morphin hypodermically for five days before delivery, but finally came out all right with instrumental assistance.

Case 480. Was called to confine primipara and found her suffering intensely. History pointed to a normal beginning of labor, but patient complained of pains all over and especially extending up into the chest. Vaginal examination showed some dilatation, discharge and occiput presenting; however, the vagina seemed unusually warm and led to an immediate test of temperature, which registered 104 degrees, and upon further examination it was found both lungs were considerably congested. Soon cough with brick dust sputum appeared while she was in labor. After delivery with instruments and a moderate flow the temperature receded and the patient was left that evening with normal temperature. The day following her temperature was 101 degrees and it gradually arose until the fourth day it was again 104 degrees. After this a usual pneumonia fever was observed with recovery by crisis on the ninth day.

Case 638. Was called about 2 a. m.; found large, very fleshy woman about twenty-five years of age, and this her first confinement. Pelvis normal, head impact, os dilated and tissues all relaxed, was having regular pains, but they seemed to lack power. History showed that she had been having pains for two days. I had never used pituitrin, but it seemed to me this was the time to try it. Gave one-half c.c. and in twenty minutes had strong pains. Gave a little chloroform and waited half an hour before deciding that instruments would be beneficial. A low operation delivered a nice healthy child, and the mother escaped without even a tear. Since that time I always carry pituitrin and use as much as one c.c. in some cases, but believe it a dangerous remedy in any but select ones. The pelvis must be roomy, the perineum relaxed, and should, in my opinion, never be given when the patient is strong and has effective pains, unless it is in the latter part of the second or third stage of labor. In just such a patient as described I found it very effective in preventing post-partum hemorrhage. One time she was sick a terrible flow of blood followed delivery of child and placenta; the next time as the child neared the perineum I gave

one c.c. pituitrin and there was no trouble. This patient had always been a free bleeder.

Case 670. Was called nine miles to primipara and upon examination found the presentation, not of the head, not of the feet, shoulders, breech or any part of the child that might be expected to present, but of a mass that proved to be intestine. My thoughts were first that I had penetrated a thin belly wall, and I had several other thoughts before the child was sufficiently delivered to realize that the abdominal walls were all absent. Normal skin covered other parts of the body and save for one leg being set rearward the toes pointing backward instead of forward, the child seemed normally built, though it died during delivery.

These are some of the unusual cases I have noted; time forbids a report of any more. Since beginning obstetrical work some things appear different to me. I was taught that forceps were a necessary evil, now I look upon them as one of the greatest blessings to mankind, often being needed and seldom doing harm in the hands of competent conscientious physicians, and I do not feel that there are many others. Ergot I give after each labor and from experience believe it should be always given after and never before the second stage. Was taught that the obstetrician's hand should be kept on the fundus of the uterus for at least one hour after delivery. This I cannot quite see as necessary. But I always keep close watch on the patient's pulse and uterine contraction for an hour. Can always find some one to care for the baby and seldom leave the bedside for anything during this time. Castor oil and turpentine are given as a routine in nearly all cases. Not always necessary, but a matter of safety first, especially when your patient is ten miles from town and you do not expect to see her again. So far I have not had any deaths from puerperal fever, and am hoping that I will not meet with one in my next thousand cases.

EXTRAUTERINE PREGNANCY WITH REPORT OF AN UNUSUAL CASE.*

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When the fertilized ovum is arrested at any point between the Graafian follicle and the uterine cavity and there undergoes development we designate the condition an extrauterine or ectopic pregnancy.

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Extrauterine pregnancy is primarily almost always situated in the tube, but may become tubo-ovarian, ovarian, abdominal, intra-ligamentous or even uterine in the further course of its development. Ovarian pregnancy is very rare.

Obviously the ovum must have been fertilized in the tube or pelvic cavity when extrauterine pregnancy exists. And this leads to the question, When normally does the ovum become impregnated. Observations upon animals have shown that spermatozoa, under normal conditions, make their way up into the tube and even into the peritoneal cavity. Spermatozoa may retain their vitality for a considerable length of time within the tube. They have been found, for example, in the female bat, six months after the last copulation. Duhrrsen observed spermatozoa in the normal fallopian tube of a woman three and a half weeks after the last copulation. So we conclude that probably fertilization of the ovum takes place normally in the fallopian tube.

The factors which lead to the arrest and development of the fertilized ovum within the tube are usually of a mechanical nature by which the downward progress of the ovum from the Graafian follicle to the uterine cavity is impeded.

Here we will review some of the anatomic peculiarities of the female reproductive organs, in order better to see how this may occur. The ovary is a solid, flattened body about the size and shape of a large almond. It is suspended loosely in the pelvis usually against the side wall. The fallopian tube is a narrow duct about four inches long, lying in a fold of peritoneum which is a part of the broad ligament of the uterus. Its opening at the uterine end is about 1 m.m. in diameter, gradually enlarging toward the abdominal free end to about 2 m.m., ending in a funnel-like fimbriated expansion in close apposition to the ovary of the same side. Thus we see that the ovum after leaving the Graafian follicle, first passes out into the pelvic cavity. The tube walls are made up of circular and longitudinal muscle coats, lined with longitudinally folded ciliated mucous membrane. This peculiar type of mucous membrane is also found lining the uterus. It has been proven that these cilia have movement directing the current downward. With these conditions in mind we can readily see how easily a state of affairs might arise to hinder the downward course of the ovum.

Kelly classes such causes under three heads:

1. Obstacles within the tube by which its lumen is diminished, as: Decidual reaction in the tube and polypi.

2. Diseases of the tubal walls and peculiarities in its anatomy, as: Catarrhal and purulent salpingitis, causing swellings of the mucous membrane and destruction of the cilia. Diverticula from the lumen of the tube. Atresia of one tube with migration of spermatozoa or fertilized ovum to the opposite side.

3. Factors acting externally to the tube by which its lumen is encroached upon, as: Uterine myomata, peritoneal bands and adhesions, and torsion of the tube.

The pathology varies with the location of implantation and stage of development. Primary implantation sometimes occurs in the extreme uterine end of the tube (interstitial type); here with development of the ovum it may be extended into the uterine cavity and there develop, passed into the abdominal cavity or rupture into the broad ligament. Implantation occurs most frequently in the infundibular portion of the tube, where it develops to about 6 to 8 weeks, and is extruded into the pelvic cavity where it attaches to the ovary, uterus, intestines, broad ligament and pelvic walls. There is always more or less hemorrhage with such extrusion. It may be sufficient to cause death. The fetus may develop with secondary implantation to maturity, which is very rare; it usually perishes. It may form a large pelvic hematocele, or abscess from secondary infection; or it may become calcified and remain in the abdominal cavity. There is a decidual reaction in the uterus which becomes enlarged and softened somewhat.

The importance of a diagnosis of the condition before rupture is great, because of the clear indications for radical treatment. Kelly says that the diagnosis of an extrauterine pregnancy is usually easy to make, but he cites many failures. Gradin states that the man who suspects every woman of having this condition is the man who is least liable to err in diagnosis. The diagnostic signs vary according to the advancement of pregnancy, and according as the sac is ruptured or unruptured.

The history is of the greatest importance, in connection with a thorough physical examination. The history of the case often shows that the woman has been sterile for some time. It may be as long as 10 or 12 years. And a close investigation generally reveals the fact that there has been some catarrhal process in the uterus and in the tubes with attacks of pelvic peritonitis. There may be an irregular menstrual history as is frequently the case with catarrhal conditions. They will almost always tell you that they had not menstruated for six to eight weeks when a slight flow appeared persisting 10 to 14 days,, with a lapse of a few days or cantinuing indefinitely. Some times the woman feels that she is pregnant, but that it is not like any former pregnancy. At other times, as in one of the cases I shall report, they have very slight or no idea of pregnancy. Colicky pain in the lower abdomen during the early period is considered a rather important symptom. Sometimes the presumptive signs and symptoms of normal pregnancy are present, with cessation of menstruation, as nausea and changes in breasts and vaginal mucosa. These, however, in my experience, have proven of very little value.

Sudden, severe, agonizing pain often coming on during exertion, with collapse and anemia, with evidences of shock and severe peritoneal irritation, is very suggestive of a ruptured ectopic pregnancy. Usually there is no temperature above 99 degrees unless there be a secondary infection with abscess formation or general septic peritonitis. The leukocytes are normal or slightly increased unless there be secondary infection. An examination will often reveal parts of the decidual cast in the uterine discharge. A tender mass extending to one side of the uterus may be outlined by vaginal examination. After rupture the mass may be quite extensive, involving the entire cul-de-sac and extending up into the abdomen. It is not so tender and does not present the edema and fixation that is found in an abscess. The uterus is somewhat enlarged and softened.

The things most often confused with an extrauterine pregnancy are: Salpingitis, in which case there is usually some fixation of the uterus and pelvic organs. There are no signs of pregnancy, the temperature is usually elevated, and leukocytes are increased. Abortion shows an enlargement of the uterus with patent os much in evidence. There is an abscess of the tender mass in the fornix or cul-de-sac. These conditions are very hard to differentiate at times without a good history.

Ovarian and broad ligament cysts are usually not tender on examination. This in connection with the history and absence of signs of pregnancy will usually differentiate.

Lejar says: "That a diagnosis is often difficult and mistakes frequent, no one will deny, and the most conscientious examination will often be powerless to avoid such mistakes; but practically all that is necessary is a diagnosis of necessity for operation; in other words, a recognition of perfectly definite indications, and this is always possible."

Great harm might be done by a rough, forceful examination.

The mortality as given by Schauta reckoned on a basis of 241 uninterfered with cases of extrauterine pregnancies is 68.8 per cent.

In the early months death is almost always due to hemorrhage; later it is caused by septic peritonitis, or rupture of the sac into a bowel.

The treatment of extrauterine pregnancy is clearly and definitely indicated. Before the fifth month the only sane thing to do is to operate. Worth says that an extrauterine pregnancy in the early months must be looked upon as a malignant growth, and it is only from the seventh month of pregnancy—after the child is viable—that it has any claims to consideration.

The type of operative treatment depends upon the complications in a given case. Early cases with or without rupture, when clean, are undoubtedly best treated by the abdominal route, with removal of blood clots and the affected tube.

By this method any tendency to hemorrhage can be dealt with promptly. These cases are closed without drainage.

Old cases with large immovable blood sacs may be treated by opening through posterior vaginal fornix where contents may be cleaned out and drainage instituted. There is some danger however of having to deal with a severe hemorrhage or a punctured loop of adherent bowel. Infected cases should be drained through the cul-de-sac. This, if done carefully, protects the general peritoneal cavity from infection. Any case observed during active hemorrhage should be operated upon at once by the abdominal route. The copious use of normal salt solution subcutaneously in severe cases of hemorrhage is a life-saving measure.

Case 1. The first case is reported because of its typical essential points. Mrs. O. S., American aged 28 years; well nourished; two children aged five and eight years. Three years ago she had a miscarriage; since that time had had pain in the pelvis, especially involving the left side during menstruation. Menstruation regular, 28-day type until November and December last, she did not menstruate for 6 or 8 weeks regularly, only a slight flow appearing at the time. On Christmas day she had sudden agonizing pain in the abdomen associated with collapse. She was put to bed and remained there, gradually recovering from the shock, but pain and tenderness persisted. She entered the hospital on January 9, 1914, on a stretcher. I had not seen her until this time. Examination revealed a rather rigid, tender abdomen. Uterus slightly larger than normal in ante-position. There was a palpable tender mass in the cul-de-sac extending to the left side, associated with a slight bloody discharge from the uterus. Temperature normal, pulse ranging from 70 to 90. She was operated on January 14 by abdominal incision. As soon as the peritoneum was opened there appeared a dark blood clot from the left side of the pelvis, extending down and filling the cul-de-sac. The fetus and membranes were partially extruded from the left tube, and implanted on the left ovary, uterus and sigmoid. The left tube was removed, abdomen cleared of foreign material and closed without drainage. She made an uneventful recovery.

Case 2. The second case illustrates some of the difficulties encountered in diagnosis and treatment. Mrs. L. S., French, aged 30 years; well nourished, two children aged four and seven years. We were unable to get a satisfactory history owing to the necessity of an interpreter. She had not menstruated for six to eight weeks, when in the latter part of January, while bathing, she had sudden severe pain in the abdomen and fainted. She was put to bed and remained there. She had continuous bloody discharge from the uterus, rather alarming at times, associated with continuous pain. I saw her for the first time February 14, 1914, when she entered the hospital on a stretcher. She ran a temperature from 99 to 100 degrees, pulse 70 to 90. White blood cells 16,000 on entering. A mass was made out extending above the pelvic brim about the size of a three or four months pregnancy. Vaginal and rectal examinations revealed a large fixed mass not especially tender, filling the entire pelvis. It was semi-fluctuant. The uterine hemorrhage persisted with rest in bed and use of ergot and hydrastis. March 1 the uterus was sounded and curretted gently. It was found to be ante-flexed, somewhat enlarged and soft. Aspiration of the cul-de-sac revealed a dark liquid blood which was sterile. We did not have permission to go into the abdomen, so she was put back to bed. Uterine hemorrhage persisted. March 10, having permission to operate, the abdomen was opened to find the left tube and ovary, sigmoid and loops of small bowel bound into a dark sac, filling the pelvis and adherent to the posterior wall of the uterus. The loops of bowel were carefully freed, the sac opened was found to contain dark liquid blood and clots.

It was cleansed out thoroughly, leaving the walls dry and closed. The left tube was removed. We hesitated to remove the sac which was very intimately adhered to the rectum and lower sigmoid. The abdomen was closed without drainage. She did nicely until about the fifth day, when uterine hemorrhage appeared again. Examination at this time revealed the tumor mass of original dimensions. The sac was then opened through the posterior vaginal fornix, tube drain inserted. With this done our battle was fought. The mass gradually disappeared and the uterine hemorrhage ceased. She walked six miles on June 16, to pay me a social call, at that time the pelvis was apparently normal.

Case 3. The third case is reported because of its very unusual course and termination.

Mrs. L. S., a very intelligent American, aged 28 years; well nourished. Had been married about seven years, no history of former pregnancy or menstrual disorder. Saw her December 26, 1914. The history dated back to February, when she had her last menstrual period. The first four months were very stormy with pains in the abdomen and back associated with nausea. The faintness and pain were so severe about the third month that it was almost unbearable. After this period nothing unusual occurred. The abdomen enlarged regularly; fetal movements became very vivid. On the night of December 24 she thought she was in labor all night, but made no progress. On the morning of December 25 fetal movements ceased and her supposed labor pains let up. December 26 there was found a large abdominal tumor mass reaching to the ensiform, nodular with crepitation in the upper part, no fetal heart tones. Vaginal examination revealed a tight, small cervix, anteriorly placed with the cul-de-sac full.

Permission to operate was gained on December 28. In the meantime there had been no temperature above 99 degrees and pulse around 80. The abdomen was opened in the mid-line coming right down on the membranes. An eight-pound baby boy was removed, perfectly developed and unusually well nourished. The membranes were attached firmly to the entire large bowel, right tube and ovary posterior wall of the uterus, sigmoid and rectum. The small bowel and omentum were completely free. The omentum presenting a very interesting picture of "hands off," shriveled and drawn up in the upper part of the abdomen. A drain was left in the abdominal wound and a tube drain in the cul-de-sac after the membranes had been dissected loose and removed. The woman recovered.

TUBERCULOSIS.*

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This is a subject we all ought to be deeply interested in, for I believe there is not a member present but what is or has been infected with it or has some friend or relative that is or has been infected with it, and it is a subject so great that were I to read from now until the end of our session, I would but have started. It is also a subject as deeply interesting to the laity as it is to the medical profession.

The amount of work that has been done to overcome the ravages of this dreaded disease is stupendous, both in research work to discover a cure and in teaching the public the precautions necessary to take to prevent its spreading.

All of us know that it is a curable disease and we all know that it is a preventable disease, we also know that it is the cause of about ten per cent. of all the deaths that occur from disease, and knowing these things, what is the reason of such a large per cent. of deaths caused by a disease that is both preventable and curable? My own opinion is that there are too few cases diagnosed in the incipient stage. I have had a colony for the treatment of tuberculosis since 1912, and I have not received a single patient in the incipient stage.

I think one big mistake made by most physicians is in not making a diagnosis of tuberculosis until the sputum proves positive by microscopical examination; when that is done we have an open case that is past the incipient stage and is sometimes in the far advanced stage.

How many physicians, especially country physicians, make a Widal before diagnosing typhoid? How many make a culture before diagnosing diphtheria? and so it is with numerous other diseases—the symptoms are noted and treatment begun and good, quick results are obtained.

Now, why couldn't the same thing be done with tuberculosis? If a patient presenting the symptoms of tuberculosis comes to you for advice and treatment, why don't you make a diagnosis of tuberculosis and treat it as such instead of waiting until the sputum is positive before making the diagnosis? The answer I get to that question from a great many physicians is this: "If I tell a patient who is able bodied and not sick enough to be in bed that he has tuberculosis I get the laugh and he immediately goes to Dr. Brown, who tells him there is nothing wrong with him except a little run down and a slight cold, etc., and he gets the dollars."

It is regrettable that such occurrences are not

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rare, but some one said he "Would rather be right than President." Now, wouldn't you rather be right than treat a person for tuberculosis and tell him there was nothing seriously wrong with him? Because if you do that it is impossible to treat a case properly.

A case of tuberculosis can not be properly treated until you have a plain heart to heart talk with your patient, gain his confidence and get his good will and hearty co-operation for in my opinion the successful outcome of the treatment depends about ninety-nine per cent. on the patient himself.

If your patient has not enough confidence in you or intelligence enough to recognize an honest effort made for his welfare then you are better off without such a patient and your conscience is clear.

I believe that the sooner more of us make diagnosis of tuberculosis without waiting for the sputum to be positive and the sooner the laity is taught that tuberculosis can and ought to be diagnosed before the sputum is positive and that, that is the best time for the patient to be cured, the sooner we will cut down our death rate.

Suppose you say there will be room for a great many errors of diagnosis that way.

If there are a great many errors made as long as they are on the side of safety there can be no harm done, on the other hand, there is a great deal and often irreparable harm by waiting too long to make the diagnosis.

I am not going to take up your time by going over the symptoms and treatment of this disease, for there are many good books on the subject which can be taken up when you have the time to devote to it that is necessary.

Conditions would be ideal if there was some infallible test we could use to make a diagnosis, then after making it have a specific to cure it; but until they are discovered I think a great deal of good will be accomplished if each and every physician will make an early diagnosis and help educate the public that the earlier the diagnosis is made the quicker, better, and more permanent results will be obtained from the treatment, and more cases will be cured. I believe that it takes more courage on the part of a physician to make a diagnosis of incipient tuberculosis than it does for any other professional duty he has to perform, it also takes a great deal of skill on his part to make a diagnosis of incipient tuberculosis, and that is the time a diagnosis is of the most value to the patient, to the patient's relatives, friends and community.

After you have made the diagnosis what are you going to do to obtain the best results for the patient, and the patient's family and friends? The *Illinois Health News,* which is our state board of health's official monthly bulletin, in the issue of September, 1916, says:

"Except in rare instances where the home conditions are unusual and where money can be spent freely, home treatment is not apt to be successful.

"Tuberculosis is not an illness of a week or of a month and the cure is often just as slow in producing results as the disease was in manifesting itself. This prolonged period of treatment makes for laxity.

"This is the extreme danger of home treatment—the tendency to laxity which, in many cases, is fatal."

The cure of tuberculosis in any stage is no child's play but requires the utmost skill and effort on the parts of the physician in charge and the patient, and especially of the patient, as it means a complete change in the life and habits of the patient and requires all of the assistance and encouragement that can be given by everyone that comes in contact with him.

There is required just as much change in their habits as is required of the men that go to training camps to be made into soldiers and there is just as much chance for them to get it at home as there is for our boys to be trained for soldiers at home.

A person fighting for his life against tuberculosis needs a great deal of training and as much instruction as can only be gained by constant supervision in order to bring about a favorable result.

I do not wish to be misunderstood and have you think I am trying to impress upon you that it is impossible to treat or cure tuberculosis at home for such is not the case; there are thousands of cases cured at home.

What I do wish to emphasize is, that to reduce the death rate of a disease that we know to be preventable and curable it will be necessary for a more concerted effort on the part of physicians in the future than there has been in the past, to get a sanitarium in each county where every case of tuberculosis regardless of the stage

may be treated. By removing the patient from home you will prevent infection of other members of the family and possibly some friends which alone will reduce the number of cases a great deal.

If each county will have an institution built expressly for the treatment of tuberculosis and if possible not have it in the same city as they have the county farm so that it can not possibly be associated in people's minds with the county farm, thereby removing the dread and horror most people have for county institutions, it would not take long for the people themselves to become educated to the value of such an institution and every case of tuberculosis in the county would be glad to be treated at such a place and I am sure by having an institution of that character there would be at the head of it some man that gives his entire time and attention to the treatment and care of tubercular cases, thereby, on the whole, giving better treatment and consequently getting better results.

If we could work on the theory that the prevention of one case is better than the cure of half a dozen or even a dozen, then we could see the great advantage of getting all the cases in a county together where they all could be given proper treatment as well as the necessary instructions regarding their conduct, mode of living and care they should take to prevent infecting others with their disease, and from an economical viewpoint the saving both of lives and money can not be calculated because there is no way of knowing how much money is being spent annually for the treatment of tuberculosis in any one county, but by looking over the death records you can see how many deaths have been caused in any year by it, and if we had a county institution and all the cases in the county treated at this institution then, in several years, we could see if there had been a reduction in the death rate and we would also know just how much tuberculosis was costing that county.

I believe until we adopt some method whereby we have a better opportunity to prevent these cases from infecting others, the work of reducing the death rate is a very slow and difficult task, and I also believe that institutional care and treatment is one of the best methods of eliminating the danger of infection known today, but in order to get full and equal results it must be necessary for every open case to receive such treatment and instructions. This in turn would require the building and maintaining of public institutions and the compulsion of every open case of tuberculosis being treated at some institution whether public or private at the patient's own discretion.

If the government would build and maintain these institutions then, no doubt, there would be some standard treatment, thereby insuring every patient, rich or poor, the treatment recognized and adopted by the government, thus reducing the danger of all the patent medicines and fakes that these patients are exposed to.

A PLEA FOR THE INTENSIVE TREATMENT OF NERVOUS DISEASES.*

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We believe we are not overstating the facts when we assert that there is more invalidism due to perfectly curable nervous diseases than to any other one class of diseases, and what is worse, there is more absolute wretchedness and unhappiness wrought by the functional neuroses than from any other diseases, since their baneful influence, when the psychic centers of the brain are involved, is not confined to the patient himself, but extends to the home, and often to the social sphere in which the patient moves.

The course of many of these diseases is characterized by exacerbations and remissions, and is often accompanied by connubial unhappiness, which may eventuate in estrangements and divorce, and if unchecked or not cut short by death from complications or intercurrent diseases, may ultimately lead to suicide or the asylum.

Notwithstanding their curability, it is not unusual for members of the medical profession not specially versed in these diseases to express the opinion that the prognosis of nervous diseases is unfavorable, and laymen often assert that medical treatment is useless. If there is a *bona fide* basis for such conclusions, we believe it is due to factors other than the impotency of the indicated remedies. Certainly we are not to be understood as claiming a cure in all classes of

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diseases of the nervous system, nor in all cases of the more curable classes, neither can such be claimed of any special branch of medicine; so that we speak generally and with due knowledge of the impossibility of restoring degenerated or organically changed organs or tissues wherever found; however, it is generally recognized that such conditions are often preventable by timely treatment.

For the purpose of elucidation, we believe our subject may be advantageously subdivided into the following headings:

1. Characteristics.
2. Procrastination.
3. Indifference.
4. Self-medication.
5. Intensive treatment.

Considering these seriatim; under (1) Characteristics, it is only necessary to remind you that many, if not most, diseases of the nervous system are essentially of slow onset—even insidious—or become chronic by reason of insufficient or inefficient treatment by virtue of which they become so "firmly rooted" that treatment necessary for a cure is so prolonged that the afflicted often have not the patience to persist until a cure is effected; the result of which is that organic changes, degeneration and sclerosis, occur, when complete restoration is impossible.

Again, the central nervous system is the fountain head of animal dynamics, hence, when diseased the entire organism in time becomes deranged, i. e., there results impaired digestion and assimilation, enfeebled circulation and respiration, and deficient excretion, with weakened volition control, from which is established a vicious circle of action and reaction until, untreated, exhaustion is the final outcome. In other words, the storage battery of physical and mental energy is low, the generators defective, insulation imperfect, with a constant supply of power to maintain.

Therefore, the fact that improvement is often slow should create no surprise, particularly if treatment be given with the object of restoring the debilitated nerve cells, and not for the purpose of temporary relief through stimulation, which, to satisfy intolerant or restive patients, the physician is too often tempted to do.

2. Procrastination. Since the progress of nervous diseases, and especially the functional neuroses, is marked by exacerbations and remissions, the patient often vacillates regarding treatment; before an exacerbation causes him to decide to consult a physician, a remission of his symptoms leads him to believe he is improving, and another exacerbation is often accompanied by the hope, if not by the actual belief, that it is but temporary, as was the preceding, and so on, until his suffering becomes so acute and constant that he is forced to obtain relief.

That treatment often may be long delayed is explained by the fact that debility of the nervous system is accompanied by irritability of the nervous elements, which reacts as a stimulant to the already weakened nerve cells, not only sapping the residual energy, but in time, actually deadening their sensibility, so that the patient may continue on the downward path in blissful ignorance until collapse finally ensues, from which recovery is usually slow and eventful.

Another frequent cause of delayed treatment results from the kindly (?) assurance of relatives or friends that the afflicted looks perfectly well, which is often true, and that his complaints are "imaginary," which is far from the truth and a great injustice to the afflicted.

To those versed in these diseases, it is unnecessary to state that physical appearances and at times even the patient's own feelings, are deceptive as previously indicated, hence, it remains for the physician, by a thorough and complete examination, to detect the true physical condition.

The regular medical adviser is not always free from blame for delay in treatment, since he too often treats the case lightly, and dismisses the patient with such advice as, "you will outgrow it," "forget it," or possibly, with the assurance that "there is nothing the matter."

3. Indifference. When at last the nervously afflicted undertakes treatment, he is often in such a mental state that he does so with either a feeling of uncertainty or actual unbelief as to the outcome, and if he carries out the treatment, it is with indifference, either from the lack of faith or enthusiasm, or, possibly, because he is unwilling to have it interfere with his usual duties or pleasures.

It is difficult and often impossible for the patient to understand that to "take treatment"

means to place himself in the care of the physician, in whom he must have confidence to actively follow instructions, but passively to yield himself absolutely to the guidance of the physician. As aptly expressed by Beard: "The attitude of a patient should be that of a voyager who resigns himself to the captain and does not look for the further shore until the time comes."

Hereto, the attendant is not always guiltless, since he often fails to impress the patient with the necessity for keeping under the supervision of the physician and of always reporting in person before his supply of medicine is taken, and of course more frequently, if the physician deems it necessary.

4. Self-medication. There is no greater cause of failure to recover from nervous diseases than self-medication, by which is not necessarily meant self-prescribing, but the regulation by the patient of the remedies prescribed by the physician.

Patients often fail to comprehend that it is not the remedies themselves that produce the results, but the manner of their use; tools do not make a craftsman, neither does the possession of drugs make a physician. Ignorance of this truth frequently proves disastrous.

It is not unusual for a patient to consider he has "taken treatment" from a physician whom he has consulted once or twice, possibly thereafter having the prescriptions refilled and taking the medicine as his own indifferent medical judgment dictates.

It is for the physician to explain the difference between desultory medication and systematic treatment, no matter by whom prescribed.

The physician should try to impress those afflicted with such chronic functional diseases as neurasthenia or such degenerative diseases as locomotor ataxia, with the necessity of more or less prolonged treatment under the direct observation of the physician after relief of the symptoms if permanent results are to be assured.

This is most difficult because of erroneous advice of well-meaning friends and the extravagant and impossible claims of the quack and pretender, with the latter of whom, patients often flit away valuable time—time which may decide between final success and failure.

In brief, if through persuasion, or the educational method of psychotherapy, the physician makes the patient understand the nature of his ailment, the obstacles to be overcome, the rationale of treatment, the object of medication with its benignity under professional supervision, and convinces him of the necessity for rejecting all other advice during treatment, then the patient will have the proper "mental attitude" for the "fifth degree," namely the intensive treatment, properly so-called, by which is meant that the patient makes all else subservient so far as necessary, and that he consistently follow the advice and instructions of his physician, or apprise the physician of his dereliction that the physician may if possible compensate for his shortcomings. In turn, the physician must cooperate to obtain the end sought in the shortest possible time, which even then often will appear to the patient unnecessarily prolonged.

To do this, the physician must recognize that to lift a hundred pound weight, at least one hundred pounds of force must be exerted at one time; not ten pounds at ten different intervals of time. Failure to apply this truth, is a frequent source of failure in the treatment of diseases of the nervous system, in which the full therapeutic effect of drugs must often be obtained before improvement can be expected.

Another essential for success is a knowledge of the therapeutic and physiological effects of the drugs prescribed, together with the knowledge and experience necessary to recognize when they are indicated; then to increase until one or the other of these effects is obtained, which will reveal to the experienced physician whether the drugs should be continued or replaced by others.

To reduce our theories to concrete form; to successfully treat a case of neurasthenia, aside from temporarily aiding digestion, sustaining the circulation and maintaining excretion; it is necessary to tranquilize the nervous system in order to conserve its energy, as well as to secure sufficient sleep to restore the overly tired nerve cells —since sleep is "nature's sweet restorer." To accomplish this "quickly and pleasantly," more than the normal amount of sleep should be obtained. Herein constitutes the cause for most failures of medical treatment, since the patient and often the physician fears ill effects from the indicated drugs, because the patient does not

understand their object and effect, and the physician has not a working knowledge of their use.

He who cannot properly wield the knife or fears the possible danger from the ignorant or unskillful use of it, obviously should not use it; neither should he jeopardize life or limb by using less radical treatment when the knife is clearly indicated and may safely be used by the competent operator; nor should one for the same reason discourage the patient from having the knife used by one who is capable of using it, and thus deprive the patient of a safe, speedy and permanent recovery.

Because people recover without active medication and occasionally in mild cases without medical treatment, is a poor argument against energetic treatment in all cases, since active treatment will not only abridge the period of recovery and cause it to be less eventful in all cases, but will prevent the disease becoming more "fixed" and diminish the possibility of the development of complications or acute diseases to which patients by reason of the accompanying debility are more prone.

Again, let us consider those common organic degenerative diseases, paresis and locomotor ataxia, which are now recognized as susceptible of cure; by which it is not to be understood that all cases are curable or that the degenerated nervous elements may possibly be restored, but the progress may be stayed and those nerve cells which have not been destroyed may be developed to such an extent as to so compensate for the destroyed elements as to constitute a practical recovery. From which it may be seen how vital is an early diagnosis, how necessary is timely treatment, and how essential that treatment be vigorously applied and persistently carried out.

Failure is more often due to the improper or unskillful use of the correct remedies than to the use of the wrong ones; in other words, failure is more often due to the misuse, than to the disuse, of the correct remedies.

It behooves us then, not only to understand nervous diseases and their treatment, but also to educate the laity that we may have their cooperation in restoring the afflicted, as well as in preventing the development of these diseases in those predisposed.

Metropolitan Bldg.

DIAGNOSTIC VALUE OF THE X-RAY IN ADVANCED PULMONARY TUBERCULOSIS.*

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Pulmonary tuberculosis or consumption was recognized and ably described symptomatically by Hippocrates. With the work of Sylvius and later of Morton, began the pathological study of this disease. Laennec, in addition to his demonstration that phthisis and tuberculosis were identical in their nature, gave us the principles of auscultation. This in combination with the technique of percussion by Auenbrugger placed the physical diagnosis of this disease on a firm basis. Not until 1882 was revealed the specific causative agent of this disease—the bacillus tuberculosis of Koch.

Unless we include the tuberculin diagnosis in its many forms as of definite value; a factor denied by many tuberculosis workers, nothing of great note has been added to aid in the diagnosis until the event of chest studies by the Roentgen Ray. It is only in the last few years that the work in Roentgenology has been placed on a practical basis by such men as Dunham of Cincinnati, Cole of New York and Hickey of Detroit. With the improvement of apparatus—improved fluoroscopic methods—the use of stereoroentgenograms instead of flat plates and finally more exhaustive co-operative study of x-ray and postmortem findings; gradually there has evolved a distinct addition to our methods of diagnosis and one destined to be of as great value in its field as have Roentgen studies been in surgical diagnosis.

Roentgenoscopy has been described as the visualization of internal pathology in the living and, if properly interpreted, represents the findings on the autopsy table. The fluoroscopic lung examination reveals the darker areas of density produced in the lung by fibrosis or consolidation, shows us the failure of the apices to light up on coughing if they be the seat of tubercular involvement, shows us the movement of the dia-

*Read before the Jackson Park branch of the Chicago Medical Society, Jan. 22, 1918.

phragm; a visual demonstration of the Litten sign of our student days and especially shows the accumulations of fluids obliterating the angles of the diaphragm. Cavities manifesting themselves as bright areas often surrounded by a dark wall are easily demonstrated.

In the graphic study it has been shown that a single flat plate is of but little value in chest work. With the event of stereoroentgenograms careful study of heart and lung changes can be made. The areas of density reveal themselves by grayish or whitish zones and in lung pathology it is presumed that the denser the shadow the older is the lesion. The spread of the disease from the hilum of the lung toward the periphery, by fan-shaped lesions along the lung lymphatics as first demonstrated by Dunham, can often be recognized. Cavities and their walls or areas of pleural thickenings can be outlined. Many other minor points can be elicited by careful study of the plates.

The diagnosis of early pulmonary tuberculosis is usually recognized as one of the difficult tasks in internal medicine. On the other hand, it has been accepted generally as a truth that the diagnosis of advanced pulmonary tuberculosis is made with the greatest of ease. Yet various institutions for the advanced consumptive report that from 10 to 15 per cent. of all cases admitted prove on careful study to be non-tubercular. This has been our experience in our hospital service. Again, conversely, one sees on the autopsy table, cases presumed to have died of other chronic diseases that are found to have succumbed to an unsuspected pulmonary tuberculosis.

Thus we can readily see that any added procedure to our old methods of clinical history—physical examinations—clinical course and chemical laboratory findings, would be exceedingly welcomed if it helped to obviate the error in the 10 to 15 per cent. of cases previously noted. To get a concrete idea of the practical and diagnostic value of the x-ray examinations, a study was made by us of one hundred (100) cases. While this number is not large we found that the figures of our last fifty cases were practically identical with those of our first fifty and that in general the results of the entire work was identical with such work as has been previously reported in the literature.

Our work was done at the Cook County Hospital of Chicago. All of our cases had been admitted as advanced pulmonary tuberculosis. We have not attempted as yet to do any work on early cases of phthisis chiefly owing to the fact that our institution admits only the advanced consumptive. Our cases have not been selected but taken for study as admitted excepting only the moribund patients. In this investigation we have attempted to compare the old methods of diagnosis with the findings of the x-ray fluoroscopic and plate study in our series of cases.

In passing, I desire to say, that we personally saw all of our cases fluoroscoped and had the opportunity of examining the stereoroentgenograms. This study developed certain impressions as to the value of various factors in chest roentgenoscopy. First, that to be able to interpret either the fluoroscopic or plate findings it was necessary to have a definite clinical knowledge of tuberculosis and its application to the anatomy and pathology of lung diseases in general. That one not versed in diseases of the chest would not be as reliable in his interpretations as one who understood the subject. Furthermore, came the belief that in the majority of far advanced cases of tuberculosis, given a good history and careful physical examination, a fluoroscopic examination alone, would serve. That a stereoroentgenogram in doubtful cases, was of more value than the fluoroscopic but that the combined examination was the method most desired. It was noted beyond any question in our mind that the recent use of stereoroentgenograms instead of the single flat plate, was a great advancement resulting in a better study of chest conditions and that wherever possible the stereoplates were to be preferred.

A COMPARISON OF RESULTS FROM THE STUDY OF "CLINICAL HISTORY" AND X-RAY FINDINGS.

As a factor in diagnosis of disease, the clinical history has always been recognized as one of greatest importance. Especially is this true in pulmonary tuberculosis. As important cogs in clinical history we included the incidence of cough, expectoration, night sweats, loss of weight, loss of strength, afternoon temperature, general lassitude, hemoptysis, amemorrhea and chest pains. If the patient had several of these symptoms as for example, loss of weight and strength, cough and hemoptysis, he was classed

as having a positive clinical history pointing to a pulmonary tuberculosis. Our clinical conclusions and our x-ray findings gave us the following:

Total number of patients examined	100
Clinical history positive, x-ray positive	85
Clinical history negative, x-ray positive	4
Clinical history positive, x-ray negative	4
Clinical history negative, x-ray negative	7

Thus we found an agreement of results in 85 per cent. of our supposed positive cases and a further agreement of 7 per cent. in cases thus classed as negative. In the eight (8) cases where the clinical history and the x-ray results were at variance, a study of the cases as to the cause of the differences developed the following: Of the four cases classified as clinically negative but x-ray positive, in one all other factors pointed toward a positive diagnosis. Three of the cases are classified as clinically negative owing to the fact that we were unable to speak the language of the patients or secure an interpreter to aid us.

In the clinical history positive but x-ray negative are three cases of pleurisy with effusion in whom no lung changes could be demonstrated by x-ray technique. One case with loss of weight and strength associated with a presumed hemoptysis after careful study proved to be a gastric ulcer case. Also it is of interest to note one case classified as clinically and x-ray positive that after investigating her previous history at another hospital was finally diagnosed as a sarcoma of the lung secondary to a sarcoma of the inferior maxillary.

Analyses of Results of Physical Fndings and X-Ray: Routine physical examinations were made on all of the cases and only those classed as being positive, showing evidence of percussion changes — roughened or prolonged expiratory notes—and the presence of rales especially after coughing. The comparative table gave us the following:

Total number of patients examined	100
Physical findings positive—X-Ray positive	87
Physical findings positive—X-Ray negative	3
Physical findings negative—X-Ray positive	2
Physical findings negative—X-Ray negative	8

Ninety-five per cent. (95 per cent.) of the cases gave similar results by these two methods of diagnosis. Under the caption of "physical findings positive and x-ray negative" are the three cases of pleurisy with effusion. And even they might be classed in group one as we know from experience that 95 per cent. of all pleurisies are tubercular. In our two cases with negative physical findings, but positive by x-ray, the clinical picture indicated phthisis and furthermore tubercle bacilli were found in the sputa of both patients. In each case we re-examined our cases and again failed to locate the pathology. On this phase of the work Manges states in an article in the *Penn. Medical Journal*, "We are convinced by frequent x-ray observations as well as by autopsy reports that extensive fibrosis may be present without producing physical signs." It is also interesting to note here that our case of lung sarcoma on physical examination gave a typical picture of advanced pulmonary tuberculosis and the x-ray findings were equally deceptive.

Laboratory Findings and X-Ray: The examination of sputa was done by our laboratory technician. The majority of the examinations were made by the usual Ziehl Nielsen staining methods. In a few cases the antiformin method was used. His reports as compared with the x-ray findings gave us the folowing:

Sputum positive—X-ray positive	74
Sputum positive—X-ray negative	0
Sputum negative—X-ray positive	18
Sputum negative—X-ray negative	8
Total number of cases	100

In this series of "sputum negative and x-ray positive" is our case of sarcoma of the lung. It is to be noted that examination of sputa gave us the greatest number of discrepancies in results obtained. We did not attempt to do or have done other methods of laboratory work, such as, presence of albumin in sputum, diazoreactions or blood changes as our past experiences have been such that we do not place a very great importance on them in the field of chest diagnosis. The eight (8) cases under the headings, "Physical Findings and X-Ray Negative" and "Sputa and X-Ray Negative" are cases of cardiac, kidney and stomach diseases admitted through error in the examining room. None of these cases in any way were suggestive as being of pulmonary origin except the case of gastric ulcer reported under the caption of "Clinical History."

Extent of Lesion as Compared by Physical Findings and X-Ray: In our study as to the extent of our lesion, we found that in 59 positive tubercular cases the physical findings and the

x-ray were in accord. With one exception all of the remaining cases presented by roentgenoscopy a greater pathology that we could determine by physical signs. Largely based on the extent of lesion is the prognosis and treatment and it is of greatest interest to learn the true valuation to be placed on this phase of the x-ray examination.

In the relatively small number of our cases that were autopsied, twelve in number, the postmortem findings concured with those of the x-ray. The chief points of difference being the greater involvement of deeper areas of the lung and the findings of small undiagnosed cavities and small accumulations of fluid. To again quote Manges, "It is true in many instances that when physical signs are positive the roentgenogram reveals a far more extensive lesion than was suspected and complications entirely undiscovered by physical signs."

Studying the statistics in this paper, one must be impressed with the favorable results obtained by a thorough x-ray examination and even be led to believe that at last we have the royal road to chest diagnosis; that no longer is a physical examination a necessity and that the x-ray laboratory can make the diagnosis as readily as the clinician. And again on the other hand, we have over 90 per cent. of all the cases correctly diagnosed in the main by physical examination and it raises the question among clinicians, "Why have the x-ray work at all?"

We have cited errors in interpretations of all the clinical methods. While illogical errors of the x-ray are not many in our series yet we have had cases where the diagnosis of tuberculosis had been made by the x-ray alone which later on careful study and correct interpretations of added roentgenograms have proved such cases as non-tubercular. A complete postmortem alone is 100 per cent. perfect; a condition of affairs of but little interest to our living cases.

Therefore, in conclusion, let us state that as none of us would make a diagnosis on any one element in our former methods of clinical study, let us not use a valuable adjunct alone on which to base our conclusions but instead, whenever possible, add it to our resources and thereby better the standard of our medical work.

30 North Michigan Ave.

CHRONIC LEAD POISONING IN THE ETIOLOGY OF PERNICIOUS ANEMIA.*

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Though the underlying cause, or causes, of pernicious anemia are still obscure, the shell of the condition as an idiopathic process is gradually being chipped away. That this applies to so-called cryptogenetic affairs generally is well-known to all who keep abreast of medical progress. In the case of pernicious anemia the big step forward was the adduction of proof that the condition is a hemolytic process. Then as contributory evidence it was shown that certain conditions associated with hemolytic action might produce a clinical and hematologic picture indistinguishable from that of pernicious anemia. Among such causative diseases—the proof being that the removal of the cause, if early enough, carries with it a complete cure—are infection with the dibothriocephalus latus, syphilis and infections which now we are accustomed to consider collectively as focal. An instance typifying this last group was cited in a recent meeting of this Society, namely, a case of chronic appendicitis regarded for a considerable period as one of true pernicious anemia, excepting only the high eosinophile count, which went on to recovery when an exacerbation of the appendicitis made operation necessary.

From the trend of my remarks it has perhaps been noted that I distinguish sharply between the so-called primary or Addison-Biermer type of pernicious anemia and those forms occurring in the course of certain other processes, such as malignancy, especially of the stomach, cirrhosis of the liver, ulcerative endocarditis, nephritis, malaria, etc. I am inclined to agree with those observers who maintain that the Addison-Biermer type can in the vast majority of cases be separated on the basis of the hematologic picture —the red cell type, whether predominantly large or small, the behavior of the leucocytes, the color-index, etc.—from those other conditions I have called secondary. Therefore, when I use the term pernicious anemia I refer to the smaller, sometimes called essential, group.

There are widely divergent views held as to the mode of entrance or place of elaboration of the

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responsible hemolytic agent. There is no difficulty in understanding this point in the case of focal infection due to a hemolytic streptococcus, nor in dibothriocephalus latus infections. Another theory that has been much emphasized in recent years lays stress upon the gastric and intestinal mucous membranes as the parts through which the responsible toxin is absorbed. As proof of this is cited the atrophy of the lining of the stomach which is an almost constant autopsy finding; and upon this theory is based the therapeutic use by some of hydrochloric acid in large amounts.

The particular phase of this etiologic theme which I wish to discuss has to do with the relationship of chronic lead poisoning to pernicious anemia. The literature bearing upon this point is rather meager. I emphasize once more that I am considering only cases conforming strictly to the Addison-Biermer formula, not the severe anemias, due to lead, but distinctly of the nature of secondary anemias. Grawitz[1], speaking of Erben's analyses, says: "Examination of the blood for iron and other constituents in a case of lead poisoning revealed a relatively high content of that metal in the blood, due in part to the presence of iron in the serum. This fact plus that of the increased fat content of the blood speak for an augmented cell destruction in lead poisoning just as in pernicious anemia." The same observer found megaloblasts in a case of chronic plumbism which recovered. Naegeli[2] conceives of the possibility of a blood poison like lead producing the same picture as does pernicious anemia.

Schnitter[3], in a monograph devoted to the blood findings in lead poisoning, divides his cases into four groups, of progressive severity. In the early cases, lead acts as a bone-marrow stimulant causing the usual and well-known picture of basophilic granulation, polychromatophilia and leucocytosis. As the toxin exerts a more extended or severer action the bone-marrow gradually becomes exhausted, the above mentioned signs of regeneration disappear and the picture becomes that of a marrow which no longer responds to stimuli with post-embryonic cells but with the fetal type as in pernicious anemia. This is not the case in the most severe secondary anemias, for in the latter the cell-type remains small and the leucocytes are usually somewhat above the normal mark.

I have been unable to find actual case reports bearing upon this assumed transition from lead poisoning to pernicious anemia. It is for this reason and because I have had an opportunity to study such a case that I have undertaken to discuss this etiologic phase of pernicious anemia.

The patient whose case I wish to report worked at a modern linotype machine in a large printing establishment in this city. The ventilation in this plant was apparently inadequate and the opportunity was present for the inhalation of fumes from the molten lead alloy. In addition, and of much more serious import was the fact that the man was also a machinist whose duties in this particular establishment required the frequent use of a steel wire brush in the cleaning of that part of the machine called the pump. This work caused the atmosphere in the immediate vicinity to be filled at such times with the very dangerous lead dust. Other distinct cases of plumbism had developed in the same shop. At the time the man was referred to me he was 48 years old and had been a linotype operator and machinist for seven years.

The history showed that though he had not been well for several years his symptoms had not been urgent enough to cause him to consult a physician until 1913, just a year before I first saw him. The records of the physician in charge during the first year of the man's illness and the account of the patient himself and of his son leave little room for doubt not only that there existed two periods in the sickness, the first merging imperceptibly into the second, but also that the primary condition was one of chronic plumbism.

The early symptoms were attacks of severe pain in the abdomen, at times cramp-like in nature, intractable constipation, severe headache, foul taste in the mouth, disinclination for food and general weakness. His color at this time, as distinguished from that of the second period, was distinctly pale. Though the man was, as stated before, in the care of a physician during this first year of his illness, unfortunately no examination of the blood was made, with the result that I am unable to offer evidence either as to the presence or absence of basophilic granulation of the red cells, the type of anemia present or the

number of white-blood corpuscles in the circulating blood. This desideratum represents an hiatus in the case which is, however, more apparent than real, and for the following reasons:

1. Observers are by no means in accord as to the constancy of stippling in the lead poisoning of printers. In this connection I quote Dr. Alice Hamilton[4]:

> The changes in the red-blood cells, known as stippling, or basophilic granulation, are thought by Silberstein to be very characteristic of the lead poisoning among printers, while Hahn and Oliver dissent absolutely from this opinion. Carozzi takes a middle ground. He finds basophilic granular cells in the blood of printers with chronic plumbism but not as frequently as in men who have been exposed to the soluble salts of lead, for this change in the blood is always in direct relation to the rapidity of the diffusion of the poison, and in type-setting the absorption of poison is of the slowest.

Dr. Hamilton's own conclusion in regard to this matter is:

> Here (quoting Cosolo's tables from Carozzi) the proportion of men with granular cells is really larger among the men in other trades than even among the printers known to have lead poisoning. It is evident from these records that the diagnosis of lead poisoning cannot be absolutely decided by the blood examination, although it may be greatly assisted.

2. In the last stages of lead poisoning—and we must assume that the case under consideration was of that type, having been exposed to the poison in one of its most dangerous forms for seven years—the blood becomes less and less that of the typical lead case, namely, a secondary anemia, with leucocytosis and perhaps basophilic granulation, and approaches the condition indicative of bone-marrow exhaustion as stated at the outset.

In view both of the diverse opinions held as to the importance of basophilic granulation in diagnosis and of the varying blood-picture in chronic plumbism depending upon the stage of the disease, it is evident that the diagnosis must rest chiefly on the symptom-picture. Dr. Hamilton's comment in this connection is as follows:

> The diagnosis of lead poisoning is especially difficult in this industry, because only in rare instances are the symptoms typical. The lead line is usually absent, especially if the teeth are well cared for. There may be no symptom of lead poisoning except anemia or granular changes in the red-blood corpuscles * * * and the principal help in diagnosis is, according to Oliver, the patient's occupation. Oliver does not find the changes in the red-blood corpuscles often enough in lead poisoning to be of much help in diagnosis; he depends more upon the general symptoms and the record of the occupation. This means that disturbances of health occurring in a printer, as in any other lead worker, must be regarded somewhat differently from similar symptoms in a man who does not come in contact with lead. It would be a fair comparison to say that just as a fever occurring in a man who has been living in a malarial region would have a somewhat different significance to the physician from a similar fever occurring in a man who had not been exposed to malaria, so the physician who examines a printer will pay more attention to certain symptoms often regarded as unimportant because he must always bear in mind the possibility of lead poisoning in such a case.

I have gone into this phase of the matter in detail in order to show that in the case under consideration, presenting side by side a history of long exposure to lead in a notoriously dangerous form, lead dust, and also characteristic symptoms—symptoms, incidentally, which do not belong to the picture of pernicious anemia—the diagnosis of lead poisoning seems not only justifiable but necessary.

Turning now to the second period of the man's illness, all uncertainty disappears. Clinically and hematologically, the case was one of the essential, or Addison-Biermer, type of pernicious anemia. My history shows the following complaints: Weakness, staggering gait (only in the preceding six weeks), anorexia, nausea and bleeding of the gums. Little of the early headache was present, and no abdominal pain.

The physical examination showed these anomalies: A lemon-yellow skin (which had succeeded the early pallor), with a fairly well-preserved subcutaneous fat; foul breath; a soft blow, systolic in time, over the entire precordium; a pulse rate of 96; a systolic blood-pressure of 103 m.m.; a liver felt three finger-breadths below the costal arch, of normal firmness and with a rounded edge; a spleen which could be palpated two fingers-breadths down; poor muscular strength; knee-jerks which were rather variable, sometimes sluggish and at others brisk; a bilateral Babinski phenomenon; and distinct impairment of deep sensation.

The laboratory regularly gave the following data: *Urine*, negative, except for a strongly

positive Ehrlich urobilinogen reaction; *stools*, negative, and in particular no ova; *blood*, variable as the man's condition improved or declined, but always of the embryonic type, with a color index considerably over one, marked leucopenia with a relative lymphocytosis, practical absence of the blood-platelets, and from time to time a few nucleated red-blood cells, all of the megaloblastic type.

Making the picture even more characteristic was the occurrence, while the patient was under observation, of a well-marked remission, of sufficient degree to enable him to return to work for a short time. This improvement, however, lasted only a few months, following which the progress to exitus was rapid. Blood transfusion carried out late in the course accomplished little. The condition was too grave for splenectomy.

An autopsy was not permitted.

Summary and Conclusions: In view of the fact that an individual employed for a long period, with improper protection, as a linotype operator and machinist developed a group of symptoms recognized as sufficient for a diagnosis in a printer, of chronic lead poisoning—symptoms, further, not a part of the picture of essential pernicious anemia—and that this same individual passed into a condition the features of which pointed unquestionably to the diagnosis of pernicious anemia of the so-called Addison-Biermer type, the conclusion seems justified that the hemolytic poison, lead, was the cause of the hemolytic, or pernicious anemia.

122 S. Michigan Ave.

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FRACTURES OF THE PELVIS AND RESULTING INJURIES TO THE URETHRA AND BLADDER.*

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When I decided to write a paper on this subject, it was not my intention to give an elaborate and finished technique on these forms of injuries, but rather to suggest some plan, be it ever so elementary, by which anyone who does surgery can save the lives of these patients.

As to just what your experience has been with this class of injuries, I do not know, but formerly I ran a pretty high mortality.

As we all know, that with the greatest amount of skill we can bring to bear on these cases, they are very serious in character, and are such as to give the surgeon grave concern.

While these cases do not come to the general and railroad surgeon as often as they do the mine surgeon, yet we are frequently called on to treat these forms of injuries.

Statistics tell us that less than 60 per cent. of the pelvic fractures are complicated with injury to the urethra or bladder or both, yet it has been my misfortune to have treated but few pelvic injuries that did not at least involve the urethra.

Symptoms of pelvic fracture: While there may be practically no deformity in fracture of the pelvic ring, there is usually quite marked shock, which is manifested by pallor, anxious expression of countenance, feeble pulse, cold clammy skin and weak voice.

There is always manifest a sense of insecurity on the injured side when an attempt is made to stand on the feet, and usually some outward rotation of the limb.

Oftentimes the deformity may be very marked, and yet it is obscured by tumefaction and extravasation of blood or urine in the tissues.

Crepitation may be manifest when the legs are moved or the patient lifted.

Pain is always manifest when the patient is moved to any appreciable degree.

The greatest care should always be exercised in rotating the limbs, for fear of wounding further the adjacent viscera; in fact, there should never be any attempt made to reduce the fractured bones without first having a good x-ray picture of the entire pelvic ring, and in that way gaining an accurate knowledge of the extent of the fracture.

Without a good x-ray of the pelvic ring the surgeon will sometimes be led into the error of believing they have a dislocation instead of a fracture, and will attempt a reduction, which will almost invariably result disastrously to the patient by the fractured ends of the pelvic bones wounding the bowel, urethra or bladder.

*Read before the Southern Illinois Medical Association, Nov. 2, 1917.

Only a short time ago I was called in consultation to see a fracture of the pelvic ring, and the attending surgeons without having an x-ray, and having a fracture of both the pubes and ischium, had attempted to reduce, as they thought, a dislocated head of the femur. The result was, they had turned the fractured ischium entirely around, and it could not be returned without first cutting down, which caused the additional wounding of a great amount of important tissue.

Some surgeons advise against any attempt at reduction of the fractured bones; if there is no deformity, I think their advice is quite correct, but if there is marked deformity, such as eversion or turning out of the foot, there should be made a short but gentle attempt at reduction; but there should never be any violence attempted, as it can only result in increased shock and further wounding of the tissues, and may convert a simple fracture of the pelvis into one complicating the bladder, urethra or bowel.

When a patient is left with a marked deformity, such as the turning out of one foot, and particularly if that patient be a woman, it mars the appearance of her gait in walking, and diminishes to quite a degree their earning capacity, and last but not least, it does not add to the reputation of the surgeon, and may be a fertile source for a suit to recover damages from the surgeon.

Abnormal mobility may often be produced by steady, gentle pressure over the pubes, or by counter pressure over the illea; frequently in this way you may elicit crepitation. If these efforts produce pain at points not pressed upon, it is of great diagnostic value.

The presence of urine extravasated into the scrotum, perineum or over the abdomen, is also of great diagnostic value, and these conditions must be speedily relieved.

One of the best diagnostic symptoms of pelvic fracture is hemorrhage from the meatus.

In suspected fracture of the pelvic ring, an examination should be made with the finger in the rectum, as with the educated finger, the fractured ends of the bones may be readily detected. Also the presence of blood in the rectum usually indicates that the bowel has been punctured by one of the fractured ends of the bones of the pelvis.

In treating these cases they should be handled with extreme care so as to prevent wounding of any of the viscera.

They should be placed on the back on a firm mattress or fracture bed.

To lie on the back will in the majority of instances, give these patients the greatest degree of comfort, but occasionally one will be found who is more comfortable lying on the side, and if they are, they should be allowed to assume that position.

The limbs should be drawn up and supported on pillows.

After an x-ray has revealed all the points of fracture, you may proceed to replace the bones in their proper positions, if it can be done easily, quickly and with safety to the patient.

Wide strips of adhesive plaster should be applied around the hips, supplemented with roller bandages, using care to pad the bony prominences with pads of absorbent cotton, so as to prevent undue pressure. The objection being to produce as nearly as possible, immobilization of the parts.

The patient should be kept on the back for four weeks, and in bed for six weeks altogether.

Great care should be taken for the first four weeks to prevent any movements that might disarrange any of the fragments.

The bowels should be evacuated on rubber sheets, and the patient not placed on a bed pan, as that requires some movement of the patient's pelvis.

In the cases of pelvic fracture where the urethra has been entirely severed, it is a beautiful theory for us to say—pass a sound down through the penis to the point where the urethra has been cut in two, and then cut through the perineum to the point of the sound, first locating the penal end of the urethra, and then the vesical end; stitch them together with fine silk or catgut sutures, introduce a soft rubber retention catheter into the bladder, and then sew drainage into your perineal wound, but in practice it is not so easy of accomplishment.

These cases usually come to us after the other fellow has made numerous unsuccessful attempts to draw off the urine of the distressed patient by introducing a metal catheter, (and not always a sterile one either) into the urethral tract, usually resulting in making one or more false passages. When the surgeon attempts to pass the catheter or sound into the bladder, he readily follows the

false passage, and when he cuts down on the end of his sound, he is easily an inch or two away from the wounded ends of the urethra, and is groping in the dark, and any attempt he may make to locate the wounded ends of the urethra only results in failure and further wounding of the tissues.

To my mind the only rational procedure in these cases is to make a reasonable, but gentle effort to pass a soft rubber catheter into the bladder, and if it does not pass readily, abandon that route altogether, and open the bladder suprapubically, pass your sound into the urethra from the bladder and the moment it meets with resistance, stop, then pass a sound through the penal end of the urethra, and nineteen times out of twenty you will feel your sounds come together with a slight metallic click. It is then an easy matter to cut down through the perineum and locate both ends of the urethra, as they are now threaded on your sounds.

There is, however, an occasional case in which the urethra is so lacerated and distorted that you are unable to find the vesical end, as I can recall two such cases, where I failed completely to locate the vesical end. In them I passed a sound from the bladder until I met with resistance, and then one from the penal end until they met, then slipped the outer end of a soft rubber catheter over the sound in the penal end and drew it out through the meatus, then by threading the distal end to the sound in the vesical end it was readily drawn into the bladder. And while the torn ends of the urethra were not sutured, I had good results in both cases.

Some authorities insist that it is better not to suture the torn ends of the urethra together, but I am sure there will be infinitely less danger of an organic stricture if the torn ends can be coapted and accurately sutured, rather than to let them be widely separated.

The urethra is usually lacerated by fragments of bone, or by a separation of the symphysis pubis.

One of the best diagnostic symptoms of injury of the urethra, as well as of pelvic fracture, is hemorrhage from the meatus.

Usually when you ask these patients if they can empty the bladder, they will say "yes, I can pass the urine, but it won't come out," and when they make an effort to empty the bladder it causes a stinging pain in the perineum which is produced by the urine extravasting into the tissues, in close proximity to the wound.

It is always of the utmost importance to locate the seat of the injury, and to know whether or not there is extravasation of urine into the tissues, and its exact location, for we know what it means to leave urine extravasated through the tissues for any length of time. In a short time it begins to decompose, and a violent infection ensues, followed by high temperatures, septic poisoning and death, either of the tissues, patient or both.

Oftentimes extravasations are followed by extensive sloughs of the scrotum, perineum or abdominal muscles.

Sometimes the extravasated urine will aid us in determining the location of the lacerated urethra. When in front of the bulb, the extravasation will occur in the perineum and scrotum, but when the injury occurs posterior to the bulb, the extravasation will occur in the perineum, around the rectum, and often between the abdominal muscles and peritoneum. These symptoms, however, would not be a safe guide.

In all suspected cases of injury of the urethra with extravasation, the only safe thing to do, is to incise freely the perineum and abdomen over the bladder, as the incision will not kill your patient, while an extensive extravasation will.

I want to emphasize the great importance of opening the bladder supra-pubically in all these cases, for several reasons. First, it enables you to find the cut or torn ends of the urethra more certainly. Second, it tells you exactly where to make your perineal incision, and with the least wounding of the tissues. Third, it enables you to say certainly, whether or not the bladder has been torn or punctured, and if any urine has extravasated into the tissues, and where to institute drainage.

Fourth, it enables you to tell whether or not there is a rupture of the bladder, and if any urine has extravasated into the peritoneal cavity.

Fifth, after you have opened down to the bladder and stripped back the peritoneum, it enables you to replace the fractured ends of the bones, easier and surer than by any other method, without the danger of injuring any of the important structures.

Some authorities advise replacing the frac-

(Continued on page 121)

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State society will pay no bills for legal services except those contracted by the committee. Notify the Chairman at once. Don't employ attorneys.

FEBRUARY, 1918

Editorials

Go *back* to the *simple* life, be contented with *simple* food, *simple* pleasures, *simple* clothes. Work hard, pray hard, play hard. Work, eat, recreate and sleep. Do it all courageously.

We have a victory to win.

—HOOVER.

PATRIOTIC DINNER.

One of the big patriotic gatherings in Chicago this month will be the dinner given at Edgewater Beach hotel by the North Shore branch of the Chicago Medical Society. Dr. Frank R. Morton, secretary of the society, determined it should be a success, and apparently his expectations have been surpassed. There are already about five hundred acceptances, and it is expected it will tax the capacity of the hotel to accommodate those wishing to attend.

The dinner is to be given in honor of the members of that branch who are in the government service. This will be a most fitting memorial of the patriotism shown by these medical men. We congratulate Dr. Morton for both the motive and the success of the affair.

THE MILK PROBLEM.

The milk problem of Chicago has been undergoing the scrutiny of a committee, which was appointed to thoroughly investigate the question of milk production, distribution, cost and selling price. This investigation was brought about largely because of the increasing price of that commodity. Such investigations, if carried on by men competent to act in such capacity, men of keen business sagacity and honest, should be of value to the city and also to dairy interests. The value will depend solely on the ability and sincerity of the investigators, but the investigation must include the entire question of milk production.

The milk supply of a large city is a vital question, the importance of which cannot be measured in dollars and cents alone. It can be measured only when the lives of infants and invalids are taken into account; and it is of more interest and importance to the medical profession than that of any other food product.

We do not pretend to know just what the price of milk in Chicago should be. We do know that the price should be sufficient to insure the producer and distributor a fair profit for supplying to the trade a pure, fresh and clean product. If the price is not sufficient to insure a profit for such product, it is sure there will be no production. It is extremely desirable that the masses of the people be supplied with this staple food at a price as low as is consistent with the cost of a high class product; but while this is desirable, it is imperative that a supply of such milk be assured not only for the present but for the future.

The commission, no doubt, consisted of able men, but one cannot help but criticise some portions of evidence it permitted, and look with distrust on the fact that the middle man is allowed a bigger price for his work of distribution than the dairyman is allowed for production. It must go without argument that a visiting nurse, unacquainted with the price of production of dairy

products, is not competent to give evidence regarding the selling price of milk.

It is asinine to argue that the dairy farmer must value the feed produced and consumed on his own farm at its actual cost to him, instead of placing the same value on such feed that his neighbor has received in cash. Such argument would imply that the dairyman be paid by love of labor. There are many factors which have increased the cost of production of milk during the last decade. Land values have increased enormously in most of the dairy districts. The cost of labor has increased about one hundred per cent. The cost or price of milk cows has increased perhaps one hundred per cent; feed values have increased at least one hundred per cent. To these additional costs add the increased cost of feeding and housing dairy laborers, the increased cost of cans, pails, bottles, and the increased cost necessitated by greatly improved sanitary methods, tuberculin testing of cows, etc., and it is clearly evident that the price of milk must increase, or the production will stop.

We are not advocating fancy profits to the producers—far from it; but we want to insist that an adequate supply of high class milk for Chicago be assured. We do not want to see Chicago the dumping place for impure, dirty, cooked milk, which cannot be sold on other markets, or is so far below the present standard that it is dangerous to use. We do not want to see milkless days, nor do we want to see epidemics of infectious diseases arise because of unsanitary conditions on the farm.

In this connection it is significant to note that the present policy advocated by the Chicago Health Department is, that very little if any sanitary inspection of dairy farms be made in the future, such as has been the custom to make for years, but that the city rely entirely on the laboratory examinations made by the city laboratory. This allows a varying amount of manure and other filth in the milk, but pasteurizing will keep down the bacterial count. A farm might be exposed to almost any milk carried infection and not be discovered. Above all it does away with the education of the dairy farmer for production of a sanitary milk. The educating of a dairy farmer to conduct a sanitary dairy farm does add to the cost, but is by far the greatest factor in producing a pure, high grade, clean milk.

It is pertinent also in estimating the price of a food product to compare it with the value of other foods. A quart of milk is estimated to have about the same caloric value as a pound of lean meat. A pound of steak at retail price costs from twenty-eight to thirty-five cents.

This shows that while the price of milk has increased, it is still one of the cheapest protein foods available.

As a result of the report of the investigating committee, Chicago is threatened with a milk famine, and it is reported that efforts are being made to send in milk from long distances. It will be criminal to deprive Chicago children of their milk supply, or in any way menace the supply for coming years.

Perhaps the best argument the producer can put forth to prove that his price is not too high is the fact of decreasing herds in northern Illinois and southern Wisconsin. This is heard from all quarters of the dairying district adjacent to Chicago,—farmers are reducing their herds, or in some instances going out of the dairy business altogether. This simply proves that other lines of farming are now paying the farmer better than the selling of milk. It took a long time to build up the dairy interests near by Chicago, and to educate the farmers to produce a high standard product. Once these high grade herds are gone, it will take years to replace them and to again educate other farmers in the production of good milk. When diminished production is once established, it requires no seer to foretell that the price of milk will be perhaps prohibitive. Chicago had better, during these times of high prices, pay for milk such price as will profit the producer rather than destroy a business which has required years to build, and on which she is dependent.

REPORT OF MEDICO-LEGAL COMMITTEE, ILLINOIS STATE MEDICAL SOCIETY.

To the Editor: The Medico-Legal Committee deem it wise to make a report not only to the council, but also to the whole Society at the beginning of the calendar year. As a prelude will give a comparative statement of two previous years.

Jan. 1—1915 to 1916 new suits..... 31
May 1—1916 to 1917 new suits..... 40
Jan. 1—1917 to Jan., 1918, inew suits..... 29

The decrease of new suits has all been in the last four months.

CASES PENDING

1917 May 1		1918 Jan. 1
3	Appellate court	None
1	Supreme court	None
15	Circuit court Cook County	17
24	Superior court Cook County	23
19	Other circuits in state	24
	Other states	1
1	Municipal court, Chicago	1
63		66

Cases disposed of which were pending Jan. 1, 1917,

Appellate court, first district.
Two cases:
One reversed without remandment.
One reversed and remanded.

Appellate court, third district:
One reversed and remanded.
One affirmed on pleadings without review of merits by Supreme court.

Municipal Court of Chicago.
Case:
Tried verdict for defendant.

Superior Court of Cook County.
Case No. —
Dismissed for want of prosecution.
Case No. —
Dismissed for want of prosecution.
Case No. —
Defendant died—case continued.
Case No. —
Settled under direction of defendant.
Dismissed.
Case No. —
Suit dismissed—want of declaration.
Case No. —
Dismissed for want of prosecution.
Recommenced.

Circuit Court of Cook County.
Case No. —
Dismissed for want of prosecution.
Case No. —
Dismissed for want of prosecution.
Case No. —
Tried—Judgment for defendant.
Case No. —
Forced to a dismissal.

Circuit Court, Champaign County.
Case No. —
Dismissed for want of prosecution.

Circuit Court, Fayette County.
Case No. —
Case taken over by Insuring Company.

Circuit Court of Knox County.
Case No. —
Dismissed for want of prosecution.

Circuit Court of Granite City.
Case defeated on demurrer.

Circuit Court, Peoria County.
Case dismissed for want of prosecution.
Recommenced.

Circuit Court, Rock Island County.
Suit dismissed—want of declaration.

Twenty-one cases that were pending January 1, 1917, were disposed of during the year.

Three other cases stated during the year were also disposed of, making a total of 24 cases disposed of January 1, 1917, to January 1, 1918.

Number of suits filed January, 1917, to January, 1918: Twenty-nine.

Cook County, 14; other counties, 15.

Number of claims filed in which no suit has yet been brought: Sixty-two. How many of the above sixty-two cases will develop into a suit the committee has no means of knowing.

The committee considers that we have had a very successful year. Three of the cases in the appellate court were decided for the defendant. Of the twenty-one cases pending January 1, 1917, all were won for the defendant except one, which was settled. Of the three other cases disposed of (Municipal Court, Cook County) two were suits for fees and a defense of malpractice was set up, in both these cases the plaintiff lost the fees and the malpractice was quashed.

The one other case was an arrest of a Doctor for violation of the Dentistry Act—Defendant found not guilty.

One other case started since January 1, 1917, was tried and lost by defendant—a verdict of $2,500, granted plaintiff—a new trial was granted in that case so it is still pending.

Respectfully submitted,

C. B. KING,

Chairman, Medico-Legal Committee.

ILLINOIS MEDICAL HISTORY

At the last meeting of the State Medical Society a committee was appointed to collect data for a History of Medicine in Illinois and especially of the Illinois State Medical Society. On account of several members of the committee being called into service in the Army and others being closely occupied on Draft Boards we have been slow in getting this work under way. The work has been divided into several parts:

1. The important facts about the profession and the Medical Societies, Hospitals, Colleges and other institutions of Medical interest which have existed in the County.

2. The History of the Illinois State Medical Society.

3. The History of the Medical Laws of Illinois.

4. The History of the Medical Schools of Illinois.

5. The History of the Medical Journals of Illinois including a Bibliography of the Medical Books and Journals which have been published in Illinois.

6. The History of the Specialists Societies of Illinois.

7. The History of the Medical Libraries of Illinois.

8. To make a collection of articles of historical interest such as saddle-bags, medicine chests, office furniture, saddles, carts, buggies, books, pictures and other paraphernalia.

We have the active co-operation of the Centennial Commission in this work and they will give us every aid within their power. A research man has been put to work in the John Crerar Library.

Through our official organ, the ILLINOIS MEDICAL JOURNAL, we appeal to every member to send to the committee at once, any facts which you have regarding the Illinois Medical History and especially your own local Medical History. We especially desire biographical sketches of the important doctors who have lived and practiced in your County and as far as possible would like pictures of them which can be used in a collection and which can be reproduced in the printed history.

The following questionnaire has been sent to the officers of each County Society, but we would be glad to have each member furnish information or co-operate with your County officers in making early return:

1. Name and location of the first Doctor in your County with some facts about him.

2. Name and locations of the first ten (10) Doctors in your County.

3. Name of the doctors in your County who know most about the Medical history.

4. Name and location of first Medical Institutions in your County with some facts regarding its organization and history.

5. Names and locations of all hospitals, Medical School and Medical Journals which have existed or do exist in your County.

9. Will you have your County newspapers call three to co-operate with the committee of the State Society in securing data for the Medical History of the State? Give names and residences of the committee.

7. When was your County Society organized? Who were the first officers?

8. Will you furnish within two weeks a brief history of your County Medical Society to form a basis of further research?

9. Will you have your County newspaper call public attention to this matter by having them publish these questions and giving them such data as may be secured for publication?

10. Give the name of any one in your County who has made a study of local Medical history or has collected articles of historical interest?

This work to be a success must have the active support of every member. Although we are involved in war we should not fail to each one do his bit toward the success of the celebration of our State's One-hundredth birthday.

Finally we would remind you that the State Society is unable to bear the whole expense of this enterprise out of its treasury and in order to do this work in a creditable manner we are asking for subscriptions toward the work. The committee has arranged for "A special Subscription Edition," limited to those who subscribe ten (10) Dollars or more toward this work. A subscription blank will be found enclosed in this number of the JOURNAL which we will ask you to sign and forward to the Chairman of the Committee. Please bear in mind that this is exclusively the enterprise of your State Society including the several County units and the committee cannot make the work any more complete than your support and your subscriptions indicate that you want it. A list of the subscriptions will be published in the JOURNAL.

For the Committee,

CARL E. BLACK,
Chairman.

W. A. EVANS, GEO. N. KREIDER,
MORTIMER, FRANK, E. W. WEIS,
C. C. O'BRYNE, CARL E. BLACK,
W. O. ENSIGN, *Committee.*

EYE, EAR, NOSE AND THROAT SECTION, ILLINOIS STATE MEDICAL SOCIETY.

Meeting at Springfield, May 21, 22 and 23, 1918.

To the Members of the Eye, Ear, Nose and Throat Section of the Illinois State Medical Society:

With the opening of the new year of 1918 the officers of the section on eye, ear, nose and throat of the Illinois State Medical Society have thought it opportune to make their preliminary statement relative to the meeting to be held in Springfield, May 21, 22 and 23, 1918. The place of the meeting is so centrally located and the splendid efforts of the local committee are planning for our entertainment, augur well for a large attendance and most enjoyable visit.

Tuesday, May 21, the entire day (from 10 a. m. until 5 p. m) will be devoted to the clinic and demonstrations. These clinics and demonstrations have heretofore been a most attractive and instructive part of our section work. The local committee assure us that the Springfield meeting will in this respect surpass all former efforts. That evening the annual banquet of the Section will take place at 6:30 p. m. This is always a feature worth the effort of an attendance. Some novel things are promised for this occasion. Preliminary to the banquet a general reception will be held, where we may fraternize and spend a delightful half hour. Wednesday, May 22, beginning at 9:00 a. m., the day will be devoted entirely to the program proper. This program of papers and discussions will be so arranged that the work of the Section will be closed at 5 p. m.

THE PROGRAM.

We want to provide a list of papers that will be attractive in every way and also assist in the success of the clinic and demonstrations. To this end we invite members of the Section to send in their requests for places on the program. Also aid by securing clinical material either for operation or demonstration. As the program is necessarily limited as to the number that can be placed, we urge a prompt response by those wishing to take part. Send all communications either to the chairman or the secretary of the Section.

Fraternally yours,

J. Sheldon Clark, Chairman,
76 Stephenson St.,
Freeport, Illinois.

Wesley H. Peck, Secretary,
Suite 1102, Columbus Memorial Bldg.,
31 North State St. Chicago, Ill.

"THREE THOUSAND MILES AWAY"

Dedicated to our Boys in Khaki

By

Arthur M. Corwin, M. D.

CHICAGO

Some fellow said the other day
  This war's three thousand miles away,
There seems for us no special need
  To manufacture fighting speed
For war, three thousand miles away.

The French have kept the Hun at bay,
  The British licked him at Ypres,*
Canadian blood is shed for us,
  Why mix our people in this muss
Of war, three thousand miles away?

Australian men were quick to see
  The menace to democracy
They struggled at Gallipoli
  They joined the fight to keep us free
By war, three thousand miles away.

This wholesale murder was begun
  In Potsdam by the bloody Hun,
The rape of Belgium was his deed,
  The burglary of France, decreed
Through War, three thousand miles away.

Official treachery and lies
  The Prussian promises disguise,
The whole world round is sick, indeed
  Infected by the Kaiser's creed
Of war, three thousand miles away.

Up! then to arms across the sea
  For freedom knows no boundary
Of race or Country, line or shore;
  At Marne, the Hun was at our door,
Our homes, security, must win
  In final battle at Berlin,
For hope, for love, for life we pay
  With blood, three thousand miles away.

Jan. 26, 1918.

*Apologies to the French dictionary.

COMPULSORY HEALTH INSURANCE TURNED DOWN IN MASSACHUSETTS.

SPECIAL RECESS COMMISSION FAILS TO UPHOLD GOV. M'CALL'S RECOMMENDATIONS—ADVOCATE EXTENSION OF SICKNESS PREVENTION MEASURES

The Special Recess Commission on Social Insurance appointed by last year's Legislature to consider Governor McCall's recommendations for compulsory health insurance reported January 15, 1918, with a majority opposed to the establishment of a state system of compulsory health insurance, declaring such a system has few supporters, is opposed by laborers and employers alike and is distinctly class legislation. The commission feels that greater thought should be given by the state to sickness prevention measures.

The majority report is signed by nine of the eleven members.

Two members of the Commission present a minority report in favor of non-contributory health insurance.

Another minority report, signed by three members, recommends the extension of medical care for school children.

MAJORITY FINDINGS

The majority report states:

After serious consideration of the evidence submitted at the various hearings and of the several studies undertaken in its behalf the majority has reached its conclusion and does not feel justified in recommending a bill to establish a system of state health insurance within the Commonwealth.

The so-called compulsory contributory system of health insurance has few supporters. There appears to be two serious obstacles to the enactment of legislation of this character, namely, the united opposition of employer and employee to the plan and the difficulties presented by the constitutional aspects of the question.

We cannot disregard the objection put forward by labor bodies and others that compulsory contributory health insurance is class legislation—inasmuch as it taxes one class of citizens, the inherently wealthy, for the benefit of the smaller but less fortunate group on which the burden of illness falls.

We believe that health insurance would not in any degree lessen poverty or so much of it at least as is due to sickness. Those persons in the Commonwealth whom the Standard bill is designed to help are already in a position to avail themselves of medical service and indemnify themselves through voluntary insurance, if they so desire, against loss caused by sickness.

The great contributory causes of poverty in the Commonwealth we find to be tuberculosis, insanity, feeble-mindedness, intemperance, insufficient wages, lack of education and shiftlessness. In view of the failure of the sanitarium benefits under the Health Insurance act in Great Britain it is difficult for us to feel that any system of health insurance would tend to alleviate or greatly improve the conditions caused by these first named diseases. Most of the health insurance systems of the compulsory type now in vogue make no provisions for chronic ailments, such as tuberculosis, insanity, cancer, or diseases extending over a period of twenty-six weeks in any given year. In the event of the wage earners succombing to any of these diseases it is conceivable that a measure of this kind might improve the condition of the members of the families affected to a degree but an act for this purpose alone is gratuitous.

PREVENTION, NOT INDEMNIFICATION THE SOLUTION

In brief, the real solution of the health question, it seems, is not indemnification for wage loss during illness, but prevention of illness. To cope intelligently with the sickness problem, therefore, our energies should be directed to making possible the extension and greater efficacy of our preventive work.

It is our opinion that an ultimate solution of the sickness indemnity question may be partially reached at least through the growth and development of voluntary industrial mutual benefit associations now in operation.

Suggestion is made by the majority in its report that if the clinics and dispensaries are extended, or its service, some provision should be made for State supervision. It recommends that the State Department of Health shall be given authority to license all dispensaries and prescribe general regulations for their management. "Such a law," the report states, "would prevent the development of commercial, exploitative institutions, some of which now exist, and would enable a constructive development of medical service to proceed in an orderly way without, however, hampering local initiative.

The majority report is signed by Senator Herbert A. Wilson of Boston, chairman; Senator Charles D. Brown of Gloucester, Representative Fred P. Greenwood of Everett, Charles B. Frothingham of Lynn, Benjamin G. Collins of Edgartown, Carl C. Emery of Newburyport, Ernest A. Lorocque of Fall River, Robert M. Washburn of Worcester and Everett Morse of Boston.

Senator Edward A. McLaughlin and Representative Vincent Brogna of Boston signed the minority report.

MILITARY EXAMINATIONS.

For the benefit of our members who will be in the service for examination of the selected men, we reproduce the following selective service regulations:

SELECTIVE SERVICE REGULATIONS

PRESCRIBED BY THE PRESIDENT UNDER THE AUTHORITY VESTED IN HIM BY THE TERMS OF THE SELECTIVE SERVICE LAW.

ACT OF CONGRESS APPROVED MAY 18, 1917

PHYSICAL EXAMINATION

Section 182. Preliminary statement.

The examining physician will first take the statement of the person to be examined (p. 1, Form 1010 P. M. G. O.). He will then proceed with the physical examination.

Section 183. Place, order, and method of examinations.

The physical examination should take place in a large, well-lighted room. The person examined is to be stripped. The examining physician should remember that a certain proportion of men will endeavor to obtain exemption by dissimulation, varying from exaggeration of an existing condition not disqualifying to downright malingering, and he should be on his guard to protect the Government and himself against such attempts at deception. The physical examination should be made in substantially the following order:

(a) *General condition; weight, height, and measurements.*—Observe the general condition of the skin, scalp, and cranium, ears, eyes, nose. mouth, face, neck, and chest. Take weight, height, and chest measurements; all chest measurements to be taken on a level just above the nipple, with the tape horizontal. Accepted measurements are as follows:

A.

STANDARD ACCEPTED MEASUREMENTS.

Height Inches	Weight Pounds	Chest Measurement — At Expiration Inches	Chest Measurement — Mobility Inches
61	118	31	2
62	120	31	2
63	124	31	2
64	128	32	2
65	130	32	2
66	132	32½	2
67	134	33	2
68	141	33¼	2½
69	148	33½	2½
70	155	34	2½
71	162	34¼	2½
72	169	34¼	3
73	176	35¼	3
74	183	36¼	3
75	190	36¾	3¼
76	197	37¼	3½
77	204	37½	3¾
78	211	38¼	4

B

The following variations from the standard shown in Table A are permissible when the applicant is active, has firm muscles, and is evidently vigorous and healthy.

Height Inches	Weight Pounds	Chest Measurement — At Expiration Inches	Chest Measurement — Mobility Inches
61	110	30	2
62	110	30	2
63	112	30	2
64	113	30	2
65	114	30	2
66	116	30¼	2
67	118	30½	2
68	121	30¾	2
69	124	31	2
70	128	31¼	2
71	133	31¾	2
72	138	32¼	2½
73	143	32¾	2½
74	148	33½	2½
75	155	34¼	2¾
76	161	34¾	2¾
77	168	35¼	3
78	175	35¾	3

There should be no departure from the prescribed standards of height. Men of 64 inches in height and over may be accepted when below the minimum weights specified above, provided the underweight is due to temporary causes and can, in the opinion of the medical examiner, be reasonably explained. To be acceptable, men below 64 inches in height must be of good physique, well developed, and muscular. Unless exceptionally well proportioned, men above 78 inches in height should be rejected.

Variations in weight above the standard are not disqualifying, unless sufficient to constitute such well-marked obesity as to interfere permanently with normal physican activity.

(b) *Rupture.*—The arms being extended above the head, backs of hands together, the applicant is required to cough vigorously; any form of rupture may now be discovered by the hand and eye, but still better by the index finger passed up to the external ring.

(c) *Genitals.*—The arms remaining extended above the head, the applicant is required to take a long step forward with the right foot and bend the right knee; the genital organs are now conveniently exposed and varicocele and other defects in the scrotum may be recognized.

(d) *Anus.*—The man is required to separate the buttocks with his hands, at the same time bending forward; this exposes the anus to examination.

(e) *Chest, heart, and lungs.*—The chest should be carefully examined by inspection, palpation, percussion, and ausculation.

The examination of the *heart* and *blood vessels* should in all cases include:

(1) Location and determination of character of apex impulse.

(2) Auscultation of the heart sounds over apex,

lower sternum, and second and third interspaces to right and left of sternum, noting accentuation of sounds and murmurs.

(3) Inspection of root of neck and upper thorax and percussion of first interspace on each side of manubrium for evidence of aneurism.

(4) Count of radial pulse, observation of its rhythm, and palpation of radial arteriec for unusual thickening or high tension.

(5) Immediately after the exercise prescribed in paragraph (g) auscultation should be repeated with particular reference to the detection of murmurs previously inaudible. Note should be made of the degree of breathlessness and increase in rate produced by exercise.

(6) Symptoms of circulatory failure such as cyanosis, breathlessness, and edema should be looked for and noted if present.

The examination of the *lungs* should in all instances include the following procedures:

Each registrant should be required to exhale his breath, cough, and immediately breathe in. The chest should be auscultated during this process. All men who show moist sounds during cough or during respiration should be classed as doubtful cases. All cases should be also classed as doubtful in which there is well-marked dullness on percussion, increased transmission of voice, harsh respiration, and prolonged expiration, even though there be no rales present. Men under weight or with sunken or deformed chests should be considered with special care, and if the conditions are marked should be classed as doubtful, even though definite signs of tuberculosis are not detected.

(f) *Upper Extremities.*—Make sure that all joints are free and supple from the phalanges to the shoulder. Note tremor of hands, if present.

(g) *Lower extremities.*—The person under examination is required to leap directly up, striking the buttocks with the heels; to hop the length of the room on the ball of first one foot and then the other; to make a standing jump as far as possible, and repeat it several times; to run the length of the room several times; heart is now re-examined.

(h) *Mental.*—The mental examination should be such as to develop whether or not the man examined is possessed of sound understanding. Obtain history of mental disorders, epilepsy, or serious chronic disease of the nervous system, if present.

(i) *Vision.*—To determine the acuity of vision, place the person under examination with back to window at a distance of 20 feet from the test types. *Examine each eye separately, without glasses, cover*ing the other eye with a card (not with the hand). The applicant is directed to read the test types from the top of the chart down as far as he can see, and his acuity of vision recorded for each eye, with the distance of 20 feet as the numerator of a fraction and the size of the type of the lowest line he can read correctly as the denominator. If he reads the 20-feet type correctly, his vision is normal and recorded 20/20; if he does not read below the 300-feet type, the vision is imperfect and recorded 20/30; if he reads the 15-feet type, the vision is unusually acute and recorded 20/15, etc.

Men may be accepted whose vision is 20/100 or better in each eye, correctable by appropriate lenses to 20/40 or better in at least one eye, provided no organic disease exists in either eye.

Examine condition of pupils their size, shape, and motor reaction to light and to accommodation. Abnormalities should be considered with reference to disease of the nervous system as well as of the eye.

(j) Hearing.—To determine the acuity of hearing place the applicant facing away from the assistant, who is 20 feet distant, and direct him to repeat promptly the words spoken by the assistant If he cannot hear the words at 20 feet the assistant should approach foot by foot, using the same voice, until the words are repeated correctly. Examine each ear separately, closing the other ear by pressing the tragus firmly against the meatus. The examiner, whose hearing should be normal, faces in the same direction as the candidate and closes one of his own ears in the same way as a control. The assistant should use a low conversational voice (not a whisper), just plainly audible to the examiner, and should use numerals, names of places, or other words or sentences until the condition of the applicant's hearing is evident. The acuity of hearing is expressed in a fraction the numerator of which is the distance in feet at which the words are heard by the candidate and the denominator the distance in feet at which the words are heard by the normal ear; thus 20/20 records normal hearing, 10/20 imperfect hearing, etc. If any doubt should exist as to the correctness of the answers given, the candidate should be blindfolded and a watch should be used, care being taken that the individual does not know the distance from the ear at which it is being held; the watch used should be one whose ticking strength has been tested by trial on a normal ear. The hearing with both ears open should not be below 10/20.

Section 184. Causes for rejection.

The following defects are causes for rejection:

(a) *Mental and nervous.*—Lack of normal understanding; insanity; epilepsy; tabes; chorea organic nervous diseases.

(b) *Skin.*—Chronic, contagious, and parasitic diseases, when severe and extensive; chronic ulcers, deep or extensive.

(c) *Head.*—Abrupt depression in skull, the consequence of old fracture.

(d) *Spine.*—Caries and abscess. Curvature (postural kyphosis and scoliosis) is cause for rejection only when it is sufficient to interfere with function, or to constitute marked deformity when in uniform.

(e) *Ears.*—Any chronic discharge from the middle ear. Peforation of the typmpanic membrane in a dry ear is not disqualifying, provided hearing is 10/20 or better.

(f) Eyes.—Acuity of visicn below the requirements of Section 183, (i); serious chronic conjunctival affections, including trachoma; entropion; per-

manent and well-marked strabismus; serious diseases of the lachrymal apparatus; exophthalmos; nystagmus.

(g) *Mouth, nose, and fauces.*—Deformities interfering with mastication or speech; chronic ulcerations; fissures or perforations of the hard palate; loss of voice or manifest alteration of it; chronic obstruction of both nostrils, or foul discharges. Nasal polypi are not a bar to acceptance for military service. Hypertrophied tonsils are not disqualifying; but if the hypertrophy is sufficiently marked to interfere with respiration or phonation, the registrant shall be advised to have the large tonsils removed immediately, pending receipt of orders to report for duty.

(h) *Neck.*—Exophthalmic goiter; pronounced simple goiter, when sufficient to interfere with the wearing of the military collar; ulcerations or great enlargement of the cervical glands.

(i) *Lungs.*—Disease of lungs. A history of pulmonary tuberculosis should be taken into consideration in connection with the physical examination of the lungs, but undue weight should not be given to statements not supported by physical signs.

(j) *Heart.*—In examining the heart care must be taken not to ascribe to disease the hurried, sharply accentuated action sometimes due to nervousness, fright, or embarrassment, or the irregular action caused by the excessive use of tobacco. Ordinarily no murmur should be declared organic unless secondary physical signs, such as cardiac enlargement, edema, cyanosis, etc., can be demonstrated.

Causes for disqualification are: Marked enlargement of the heart; definite organic valvular disease as indicated by secondary signs or symptoms in addition to murmurs; aneurism in every situation; complete irregularity, but not dropped or premature beats; marked high blood pressure, over 200 mm. systolic or 120 mm. diastolic. Definite symptoms of circulatory failure, such as breathlessness, marked cyanosis, or edema.

(k) *Abdomen.*—Chronic inflammations of the gastro-intestinal tract, including chronic diarrhea and dysentery and other serious diseases of the abdominal organs. Great care should be exercised before exempting for these conditions. A history of appendicitis without present symptoms is not a cause of rejection. Hernia in any location disqualifies.

(l) *Anus.*—Hemorrhoids of a pronounced type, prolapsus, fistula, fissures if of a disabling character.

(m) *Genito-urinary organs.*—Tight urethral stricture; undescended testicle if located in the inguinal canal; marked hydrocele. Chronic disease of the bladder and kidneys, if confirmed by laboratory tests. Varicocele does not constitute a cause for rejection unless it is so large as to interfere with locomotion.

Syphilis is a cause for rejection only when permanently incapacitating. Syphilis in the primary and secondary stages, that is, during the infectious period, chancroid, and gonorrhea, acute and chronic, are not disqualifying, but individuals so affected should be advised immediately to secure appropriate medical treatment pending receipt of orders to report for duty.

The fact that registrants have been found to be afflicted with the above-mentioned venereal diseases should be noted on the papers that are sent with them when they report for duty.

(n) *Affections common to both extremities.*—Chronic rheumatism and disabling diseases of the joints; irreducible dislocation or false joints; old dislocations if attended with marked impairment of motion or distortion of the joint; chronic synovitis; caries; necrosis; atrophy or paralysis; badly united fractures; extensive or adherent scars and permanent contraction of muscles, when sufficient to cause marked disability

(o) *Hands.*—Webbed fingers of right hand if disabling; permanent flexion, extension, or loss of motion of one of more fingers; loss or serious mutilation of either thumb; total loss of index finger of the right hand; total loss of any two fingers of the same hand, or loss of the second and third phalanges of all the fingers of either hand.

(p) *Lower extremities* — Pronounced varicose veins, especially when attended with edema or marks of ulceration; pronounced knock-knees; clubfeet; well-marked flat feet, especially if attended with subjective symptoms; large and painful bunions; overriding or marked displacement or deformity of any of the toes. Hammer-toe is cause for rejection if it is well marked and interferes with the wearing of ordinary shoes.

The shin bone, if rough, nodulated, and tender, suggests syphilis.

A broad, flat sole is common in laboring classes, particularly among negroes, and is in no way disabling. In the flat foot which renders a man unfit for service the arch is so far gone that the entire border rests upon the ground, with the inner ankle lowered and very prominent and the foot apparently pushed outward.

Section 185. Dental requirements.

Teh person must have at least eight *serviceable natural* masticating teeth, either bicuspids or molars, four above and four below opposing, and six *serviceable natural* incisors or canines, three above and three below opposing. These teeth must be so opposed as to serve the purposes of incision and mastication. There must be one molar above and one below on one side which occlude; the remaining six opposing masticating teeth may be either bicuspids or molars.

Teeth restored by crown or fixed bridge work, when such work is well placed and thoroughly serviceable, are to be considered as *serviceable natural* teeth within the meaning of the above paragraph,

A well-fitting artificial denture, plate, or removable bridge is allowed to take the place of missing teeth, providing the *serviceable natural* teeth one one side of the mouth are sufficient to meet one-half the masticating (bicusped or molar) requirements fifixed above as the minimum.

If dental work will restore the teeth so as to meet the requirements outlined in the preceding para-

graphs, the man should be accepted and sent to his cantonment, where the dental work needed to bring him within the requirements will be carried out.

cation.

Section 186. Degree of deficiciency for disqualifi-

Any of the physical deficiencies mentioned above must be present in such degree as clearly and unmistakably to disqualify the man for military service before he can be found to be physically deficient and not physically qualified for military service.

Examining physicians of local boards should consider the regulations as a guide to their discretion rather than a set of arbitrary rules destroying their discretion. The object is to procure men who are physically fit for the rigors of field service, and the determination of this question is left to the guided and learned discretion of medical men and not wholly to a chart of arbitrary rules.

Where serious doubt exists as to the fitness of the registrant, the case should be referred to the Medical Advisory Board for consultation.

Section 187. Temporary defects.

Temporary effects of acute disease or of an injury are not to be regarded as justifying a finding that the person so affected is physically deficient and not physically qualified for military service, but such conditions justify a reasonable delay in completing the physical examination in order that an opportunity for recovery may be afforded.

Section 188. Special report in case of men physically disqualified for general military service, but able to do special or limited military service.

In each case in which the registrant is found to be *physically disqualified for generat mlitary service,* the examining physician will ascertain the nature of the trades, professions, or other civil occupations of the registrant, and will report to the Local Board, in the proper place on form for physical examination, whether in his judgment the registrant is physically capable of rendering special or limited military service in any such trade, profession, or occupation, or in a similar capacity. This information is desired in order that, if the exigencies of the war so require, the War Department may call upon such men for service other than active military service in the field. In deciding upon the registrant's qualifications for such service, the examining physician shall consider that the service here contemplated is not active military duty on the firing line, or any other class of duty necessitating greater physical development or endurance or more perfect vision or hearing than is necessary in the same class of work in civil life. (See sections 122-124, Part V.)

NAVY'S CALL FOR BINOCULARS, SPY-GLASSES AND TELESCOPES—"THE EYES OF THE NAVY."

Dear Sir: The Navy is still in urgent need of binoculars, spy-glasses and telescopes. The use of the submarine has so changed naval warfare that more "eyes" are needed on every ship, in order that a constant and efficient lookout may be maintained. Sextants and chronometers are also urgently required.

Heretofore, the United States has been obliged to rely almost entirely upon foreign countries for its supply of such articles. These channels of supply are now closed, and as no stock is on hand in this country to meet the present emergency, it has become necessary to appeal to the patriotism of private owners to furnish "eyes for the navy."

Several weeks ago, an appeal was made through the daily press, resulting in the receipt of over 3,000 glasses of various kinds, the great majority of which has proven satisfactory for naval use. *This number, however, is wholly insufficient, and the navy needs many thousands more.*

May I, therefore, ask your co-operation with the navy, to impress upon your subscribers, either editorially, pictorially or in display, by announcing in addition to the above general statement, the following salient features in connection with the navy's call:

"All articles should be securely tagged giving name and address to the donor, and forwarded by mail or express to the Honorable Franklin D. Roosevelt, Assistant Secretary of the Navy, care of Naval Observatory, Washington, D. C., so that they may be acknowledged by him.

"Articles not suitable for naval use will be returned to the sender. Those accepted will be keyed, so that the name and address of the donor will be permanently recorded at the Navy Department, and every effort will be made to return them, with added historic interest, at the termination of the war. It is, of course impossible to guarantee them against damage or loss.

"As the government cannot, under the law, accept services or material without making some payment therefor, one dollar will be paid for each article accepted, which sum will constitute the rental price, or in the event of loss, the purchase price, of such article."

Toward the end of January, it is proposed to distribute throughout the country, posters making an appeal to fill this want of the navy.

As this is a matter which depends entirely for its success upon publicity, I very much hope that you will feel inclined to help the navy at this time by assisting in any way that lies within your power.

Very sincerely yours,

FRANKLIN D. ROOSEVELT,
Assistant Secretary of the Navy.

Public Health

SECOND CLINICAL CONFERENCE ON TUBERCULOSIS A MARKED SUCCESS.

The second clinical conference on the early diagnosis of tuberculosis held at Springfield, January 24, 25 and 26, under the auspices of the State Council of Defense, the State Department of Public Health and the Illinois Tuberculosis Association, proved to be one of the most interesting and important meetings

of the kind ever held in the middle west. From the morning of the first day, throughout the very last session physicians affiliated with the Cooperating Committee on the Tuberculosis War Problem of Illinois from over forty counties, manifested an unusual interest in the meetings.

The large attendance was probably due to a large extent to the growing appreciation of the importance of tuberculosis as a war problem and to the fact that almost 600 young men have already been returned to Illinois from the various cantonments on account of active tuberculosis; but the sustained interest in the sessions was attributable to the excellently arranged program and to the large number of well-known clinical teachers who carried it out.

The sessions opened with a summary of the essentials in the early diagnosis of tuberculosis by Dr. Frank Billings, of Chicago, who also spoke at the open meetings of the session, first on his observations in Russia and again on the modern warfare against tuberculosis. Especial interest was manifested in the discussion and clinical demonstration of artificial pneumothorax by Dr. Ethan Allen Gray, of Chicago; a clinical discussion of inspection and palpation in early diagnosis by Dr. O. W. McMichael and a demonstration of the uses and limitations of the x-ray in diagnosis by Dr. Adolph Hartung.

The sessions were almost altogether clinical in character, utilizing the patients of the dispensary of the Springfield Tuberculosis Association, and clinical instruction was given to groups of physicians by Drs. Stephen R. Pertovitz, of Chicago; Dr. John H. Peck, of Des Moines; Dr. Wilson Ruffin Abbott, of Chicago, and Dr. George Thomas Palmer, of Springfield.

These clinical conferences are a part of the Illinois program to meet the tuberculosis war problem and the second conference was devoted largely to arrangements for the care of returned tuberculous soldiers in their home communities. On account of the fact that most of the several hundred soldiers who have already been returned to the various counties of Illinois on account of tuberculosis have not been in service as long as three months, most of them have been discharged for illness contracted "not in line of duty" and, on this account, no provision has been made for their care either by the army nor by the American Red Cross. The co-operating committee on the tuberculosis war problem of Illinois, of which Dr. George Thomas Palmer is chairman, and which has a local committee in every county, is urging that county boards of supervisors or commissioners make financial provision for the sanatorium care of these young men until some other arrangement is made for them. It is also urged that tuberculosis dispensaries be established in every county and that visiting tuberculosis nurses be employed to follow up these tuberculous soldiers in case they are not assigned to sanatoria or after their discharge from such institutions. The county boards of over twenty counties have already made provision for sanatorium care for soldiers and many of them have also made appropriations for dispensaries and nursing service.

It was reported at this conference that a new dispensary has been established at Decatur through Macon county appropriations under the direction of Dr. Cecil Jack and that a similar institution has been created at Bloomington under the direction of Dr. Bernice Curry. Danville will open a municipal tuberculosis dispensary within the next ten days.

As a result of this co-ordinated work of the Council of Defense, the State Department of Public Health and the Illinois Tuberculosis Association, it is stated that more public funds have been appropriated for tuberculosis work in the state outside Chicago during the past year than in any five years in the past.

SURVEY OF THE CAMP GRANT SANITARY ZONE COMPLETED.

The sanitary survey of the several hundred square miles about the city of Rockford and including that city, which constitutes the Camp Grant Sanitary Zone of the State Department of Health, has just been completed by a staff delegated by tne health department and representatives of other State Departments delegated for this service. The survey included an intensive investigation of every condition which may affect the health of the soldiers in the cantonment including water supply, sewage disposal, garbage disposal, communicable diseases, tuberculosis, hospital facilities, venereal disease, etc., the major work being done by the Divisions of Sanitary Engineering, of Communicable Diseases and of Surveys and Rural Hygiene. Co-operative service was rendered by the State Department of Public Welfare and by the officers of the State Fire Marshall and State Factory Inspectors.

The data collected are now being compiled and prepared for practical use.

DR. DRAKE TOURS MISSISSIPPI VALLEY ON FEDERAL SERVICE.

Dr. C. St. Clair Drake, Director of the State Department of Public Health, has just returned from a tour of twelve Mississippi Valley states made at the instance of the United States Government. His itinerary included the states of Iowa, Missouri, Arkansas, Louisiana, Tennessee, Mississippi and Kentucky.

AN INTERESTING OBSTACLE TO DEATH REGISTRATION.

Inspectors from the Division of Vital Statistics of the State Department of Public Health were recently assigned to one of the smaller and more remote counties of southern Illinois which aroused suspicion by a showing of an unusually low rate of mortality. Careful investigation elicited the fact that the death rate of the county was higher than the average for that section of the state, the failure to report deaths being due to the fact that there are few if any undertakers or embalmers in the county, coffins being carried as part of the stock of the neighborhood general stores. For generations past, in case of death,

a member of the family of the deceased or one of the neighbors, has been accustoemd to go to the cross-roads store to buy a coffin just as he would a rocking chair, and then the neighbors have gathered together and buried the remains in a private or rural public cemetery. Steps have been taken to place a check on this practice which savors of the pioneer days of Illinois.

STATE BACTERIOLOGIST CALLED TO COLORS.

Dr. George F. Sorgatz, of Springfield, chief of the Division of Diagnostic Laboratories of the State Department of Health, has left Illinois to report for military service at Fort McPherson, eGorgia, where he is assigned to the Springfield hospital unit organized by Dr. D. M. Ottis. This is the third representative of the State Health Department called to military service. Paul Hansen, chief of the Division of Sanitary Engineering, has been in France for many months as a captain of engineers.

HEALTH DEPARTMENT COMPLETES RECORDS OF REGISTRATION OF PHYSICIANS.

The December number of *Health News*, the official publication of the State Department of Public Health, contains the final lists of physicians licensed to practice in Illinois by the State Board of Health. With the publication of this list, the state health organization as a licensing and registering body is terminated, all examination and licensure passing to the Department of Registration and Education which came into existence July 1, 1917, with the adoption of the Civil Administrative Code.

FRACTURES OF THE PELVIS.

(Continued from page 109)

tured bones by introducing the finger into the rectum, but it should never be attempted for fear of cutting a hole in the bowel with the fractured ends of the bones.

Unless there is the best of reason, such as great deformity that will interfere with the gait in walking, or eversion of the foot, no reduction of the bones should be attempted.

Too much stress cannot be laid on thorough drainage of the perineum, and opening the bladder supra-pubically. I have had three cases in the past two years, all of which would have been lost, if I had depended on perineal drainage alone, as they all had ruptures of the bladder, and there was extravasated into the abdominal muscles and peritoneal cavity from two to four quarts of urine.

The cases were all treated by opening the abdomen, removing the urine, flushing out the cavities with a large quantity of normal salt solution, putting a cigarette drain down into the culdesac and placing the patient in the Fowler position for a day or two until the danger of sepsis was past.

All three cases made prompt recoveries.

The presence of extravasated urine in the perineum will usually be indicated by a purplish hue of the perineum, pain on pressure, and sometimes fluctuation.

Rupture of the bladder will be attended by pain in the hypogastric regions and a frequent desire to pass the urine.

In all wounds of the urethra, if possible, the torn ends should be coapted and sutured.

The ideal method in these cases, after the torn ends have been coapted and sutured, is to pass a soft rubber retention catheter into the urethra, one or two inches beyond the wound, but not into the bladder, and retain it there for four or five days until union has taken place in the urethra, and the perineal wound has practically healed, then the catheter can be passed entirely into the bladder and the supra-pubic drain removed.

When a retention catheter is placed entirely in the bladder immediately after the torn ends have been sutured, there will in the majority of instances, be some urine pass down around the catheter, and oftentimes will delay your union, by breaking through the perineal wound and separating the torn ends, produce a stricture, and necessitate a subsequent operation for stricture.

Some surgeons claim to have equally as good results with a fixation catheter in the bladder from the beginning. If that be true, it is simply a matter of choice on the part of the surgeon.

In conclusion allow me to say, that the surgeon should never in these cases overlook his pathology, and in practically every instance, the most important part of his pathology, is the extravasated urine.

Society Proceedings

ALEXANDER COUNTY

A meeting of the Alexander County Medical Society was held Thursday evening, December 20, 1917, in the Mutt and Jeff room of the Halliday hotel, at Cairo. Officers elected for 1918 were as follows:

Dr. Flint Bondurant, president; Dr. R. E. Barrows, vice-president; Dr. James M. McManus, secretary and

treasurer. Dr. C. M. Dickerson of Miller City, was re-elected member of the board of censors.

Two new members were taken into the society, Dr. W. A. Lottman, of Olive Branch, and Dr. J. A. M. Gibbs, of Unity. There are now twenty-nine eligible physicians in the County, of whom twenty-four are now members of the County society. Fourteen are members of the A. M. A. The society voted to increase the annual dues to five dollars. It was also decided that the dues of members now in military service be paid out of the treasury, and that these members be kept in good standing in the County and State societies during their absence. Dr. Charles Weber of Cairo, and Dr. C. E. Duncan of McClure, are now in military service.

Following the business session, a delicious luncheon was served. Dr. J. W. Dunn, retiring president, presided as toastmaster and opened the program with an address. Dr. Flint Bondurant, president-elect, followed with a speech. Dr. W. F. Grinstead spoke on "The Doctor's Relation to the Selective Service Law." Dr. Samuel B. Cary followed with "Stories of a Country Doctor," truthful tales of his early days in the profession, which were very interesting and humorous. Several stories were told by different members until the evening was well advanced, and after listening to patriotic airs and songs the meeting adjourned.

R. E. Barrows,
Secretary.

COOK COUNTY

Chicago Medical Society

Regular Meeting, January 9, 1918

1. Presentation of Four Severe Head Injury Cases, David C. Straus. General discussion.

2. Cystoscopic Method of Removal of Urethral Stones, Victor D. Lespinasse. Discussion, L. E. Schmidt, Herman Kretschmer, B. C. Corbus, Robert Herbst, and Charles M. McKenna.

Joint Meeting of the Chicago Pediatric Society and the Chicago Medical Society, January 16, 1918

1. Treatment of Scarlet Fever with Convalescent Serum, George Weaver.

2. Complications in Acute Infectious Diseases as Seen in Cook County Hospital, Maurice L. Blatt. Discussion, Archibald L. Hoyne.

3. The Value of Early and Efficient Doses of Antitoxin in Diphtheria, Edward K. Armstrong. Discussion, A. Levinson and Frank D. Francis.

Regular Meeting, January 30, 1918

1. A Further Study of the Etiology, Pathology and Treatment of Metastatic Joint Infections, Philip Kreuscher. Discussion—Victor D. Lespinasse, J. A. Wolfer, George Jordan.

2. A Review of Haemolytic Jaundice with Report of Cases, W. O. Bridges, Omaha, Neb. Discussion—Chas. A. Elliott, Nelson Percy, Julius Hess.

CHICAGO OPHTHALMOLOGICAL SOCIETY MEETING OF NOV. 19, 1917—Continued.

OCULAR MANIFESTATIONS OF REFLEX ORIGIN.

Dr. B. F. Andrews said that ophthalmologists are familiar with the many intra- and extra-ocular phenomena arising from purulent processes in the nose and its accessory sinuses. The literature bearing upon this phase of ocular disturbances is quite profuse.

He called attention to another group of ocular disturbances, due to extraorbital conditions, nonpurulent in character, regarding which the literature is more scant.

He referred to that rather numerous class of cases which well nigh exhausts the patience, and baffles the skill of the ophthalmologist, to properly correct with glasses that can be worn with satisfaction for any considerable length of time. These patients came to the ophthalmologist after having passed through the hands of refractionists of repute; had been examined under mydriasis and without; had been refracted with cycloplegics and without. They also bring as proof, an assortment of glasses that had been prescribed, each worn with comfort for a time, only in turn to be rejected.

Another group of cases, coming under the same general class is composed of those who, for some defect or other, wear glasses which are comfortable until some operation or other disturbance involving the distribution of some branch of the trigeminous nerve has supervened. After such an operation, some of these cases discard their glasses altogether, while others are compelled to seek relief in new lenses for the correction of error, differing in kind or degree, from that which existed before.

The cases cited above are of such numerical importance that a satisfactory explanation for their occurrence should be sought, and, if found, doubtless would be welcomed by all.

To be continued.

THE GREENE COUNTY MEDICAL SOCIETY

December Report

The annual meeting of the Greene County Medical Society was held at the City Hall in White Hall, Illinois, Friday, December 14, 1917.

Dr. J. J. Lewis was elected to membership.

The application of Dr. H. W. Garrison, of Hillview, was referred to the board of censors for action.

The question of ethics was brought up and discussed, as to physicians selling out and later coming or contemplating coming back into the same city or community to practice, the matter finally being referred to the board of censors for a decision of same.

The annual report of the secretary-treasurer for 1917 was read and accepted.

The annual membership dues were raised from $3.00 to $3.25.

The following officers were elected for 1918: President, L. J. Hensler, Carrollton; vice-president, E. E. Jouett, Carrollton; secretary-treasurer, L. O. Frech, White Hall; censor for 3 years, F. N. McLaren, White Hall; delegate to State meeting, 2 years, C. R. Bates, Roodhouse; alternate delegate, 2 years, O. L. Edwards, Roodhouse.

A motion by Dr. Peek that the society pay the expenses of the delegate to the State meeting each year was defeated.

In view of the fact that one of our members, in the person of Dr. L. O. Hamilton, of Roodhouse, has been commissioned in the Medical Officers' Reserve Corps, and expects to leave at any time, a motion was made by Dr. Bates, "that any member of the Greene County Medical Society leaving for service in the army or navy issue a card to each of his patients, instructing them to present same to other physicians consulted in his absence, stating that he has gone to the colors, that such physician or physicians may know that he has been the family physician, and that said physicians consulted turn over to his family each month such fees as are due him as per resolution stated elsewhere in these minutes." Carried.

The secretary was instructed to have inserted in each of the county papers a notice regarding our action relating to those physicians who join the colors.

It was suggested by one member of the society that that some steps be taken toward the elimination of one telephone system, inasmuch as two systems are a nuisance and a double expense to the medical profession. Motion by Dr. Peek that a committee, consisting of Dr. McLaren, White Hall; Dr. Edwards, Roodhouse, and Dr. Jouett, of Carrollton, be appointed by the president of the society to investigate and take the necessary steps towards the elimination of one telephone system by the medical profession of the county and report the action of same at the earliest opportunity. After a lengthy discussion the motion was put before the society and passed.

Motion by Dr. Chapman that our delegates to the state society work for the passage of a resolution by the state society, to be presented to congress, for a law making military service for young men obligatory. Upon vote the motion carried.

Motion that the secretary write to the State Board of Health and obtain the full contents of the law on venereal diseases. Motion carried.

The following were appointed members of the Judiciary committee, by the new president for 1918: Howard Burns, Carrollton, chairman; C. R. Thomas, Roodhouse, and F. H. Russell, Eldred.

Censors reported Carrollton as the next place of meeting, Friday, February 8, 1918. Fifteen members were present.

A chicken pie dinner, served by the ladies of the First Methodist Church, was enjoyed by the society. Adjourned.

L. O. Frech,
Secretary.

MADISON COUNTY

Our December Meeting

The Madison County Medical Society met in Alton, on December 7, 1917, at 2 o'clock with Vice-President Dr. J. H. Siegel, presiding.

Members present: Halliburton, Pfeiffenberger, Ferguson, Barnsback, Luster, J. H. Fiegenbaum, Schreifels, Beard, Siegel, Vaught, Berry, Kaeser, Meloy, Hale, Gossard, Bowman, Waldo Fisher, Cook, Lemen, Taphorn, Joesting, Wilkinson, MacNamara, Schroeder and E. W. Fiegenbaum. Visitors: Mrs. J. H. Siegel, of Collinsville, and Dr. George A. Zeller, Superintendent of the Alton State Hospital.

All of the bill referred to special auditors, Pfeiffenberger, Luster and Barnsback, found correct and ordered paid. Application for membership of Dr. Walter A. Day, of Alton, was presented and referred to Board of Censors. Upon favorable report the rules were suspended and Dr. Day was declared elected to membership. The secretary reported that the census of physicians of Madison county had been taken, and on motion of Dr. Luster a committee of five was appointed to review the reports and notify the state authorities. The chair appointed Drs. Fiegenbaum, Luster, Pfeiffenberger, and Kaser, and by special request Dr. Siegel was added to the committee. The secretary was instructed to buy 500 Red Cross Christmas Seals for the use of the society and also a like number of seals for the Madison County Anti-Tuberculosis Association.

Dr. Luster announced the death of Dr. John W. Baker, of Granite City and on motion the chair appointed Drs. Luster, Schreifels and Schroeder as a committee to draft suitable resolutions and to report at our next meeting. In the matter of Dr. R. B. Scott, Dr. Barnsback reported that one member of the committee had died and one was called to service. The chair appointed Drs. Kiser and Fiegenbaum to fill the vacancies.

The reports of the secretary and treasurer for the year were read and referred to special auditors Pfeiffenberger, Luster and Ferguson, compared, found correct and upon motion were accepted and ordered filed. Dr. E. A. Cook was elected as Medical Director of Tuberculosis for Madison county.

The annual election of officers for the coming year was held and results are published on page 3 of this issue. The newly elected president was introduced and gave a very interesting account of his recent visit to Washington. He reported in detail on the Carrel-Dakin Solution as he saw it in use at the hospitals of the Capitol City. He also distributed copies of the formula for making Chloramine Paste, an agent highly recommended in the treatment of slight or extensive wounds.

Dr. George A. Zeller, superintendent of Alton State Hospital, made a short talk which was highly appreciated. On motion of Dr. Lemen it was ordered that the annual dues of every one of our members in actual service be remitted until the end of such service and that the individual members be notified of this action.

The new rules of the Department of Public Health,

effective November 1, 1917, making all venereal diseases in the infectious stage reportable, the same as other communicable diseases, were read and provoked a storm of discussion. It was announced that the state authorities were determined to enforce these rules. On motion adjourned to meet in Edwardsville on the first Friday in January, 1918.

Our January Meeting

The first meeting of the Madison County Medical Society in 1918, was held at Edwardsville on the afternoon of January 4, 1918, with Vice-President Dr. A. F. Kaeser in the chair. Twenty-five members present. Also two visitors were present.

The minutes of the last meeting were read and approved. Dr. D. A. Smith, of Madison, was elected to membership. Upon application of Dr. W. H. C. Smith it was agreed to receive the application of Dr. Groves B. Smith to become a member of this society. Bills were presented, referred to auditors, found correct and ordered paid. Dr. R. D. Luster reported resolutions on the death of Dr. John W. Baker which were unanimously adopted.

WHEREAS, Through an unfortunate combination of circumstances, the career of Dr. John W. Baker, our brother physician and fellow member of the Madison County Medical Society, was cut short; and

WHEREAS, Through his death our society has lost an energetic and enthusiastic member; and his family a devoted husband and father; be it

RESOLVED, That we feel this loss deeply and that we miss his presence in the midst of our activities; be it further

RESOLVED, That we express our sympathy to his family; and be it further

RESOLVED, That these resolutions be spread on the minutes of our society and printed in the Madison County Doctor and a copy sent to the members of his family.

R. D. Luster,
Hugo C. H. Schroeder,
L. Schreifels.

Dr. E. A. Cook, as County Tuberculosis Director, reported that 17 young men from Madison County had been returned to their homes from cantonments, because of tuberculosis, and requested the aid of our members in taking care of these men. Dr. R. D. Luster reported that the final results of the sale of Red Cross Seals would probably amount to $3,000.00, and promised an itemized statement for our next meeting.

Dr. John J. McShane, Chief of the Bureau of Communicable Diseases, gave a fine address on the rules adopted by the Department of Health, which makes all venereal diseases in their infectious stages, reportable. The whole matter was discussed for over an hour, much to the benefit and instruction of all present.

One Hundred Per Cent

All of our members from Highland and all of our members from Livingston were present at our last meeting. This meant an overland trip of from 36 to 40 miles in winter weather over winter roads. Nothing yellow about this, we think.

McHENRY COUNTY

The November and last meeting for 1917 of the McHenry County Medical Society was held in the Court House at Woodstock, Wednesday, Nov. 14, 1917. The program of the meeting was along the lines of "Public Health and Prevention of Communicable Diseases." The speakers of the occasion were Dr. C. E. Crawford, of Rockford, District Health Officer, and State's Attorney V. S. Lumley of Woodstock. Dr. Crawford went over in detail the commoner contagious diseases, giving not only the classical diagnosis of each, but pointed out many diagnostic symptoms observed by him during his many years of health work. Mr. Lumley followed Dr. Crawford with a most instructive talk upon the legal side of these questions, bringing out many points that were new or had been unthought of by most of those present. Taken all in all this was one of the most interesting and instructive meetings ever held in McHenry County. Twenty physicians and a number of supervisors attended the meeting.

The following officers were elected for 1918: President, Dr. C. C. Peck, Harvard; vice-president, Dr. N. L. Seelye, Harvard; secretary-treasurer, Dr. Hyde West, Woodstock; delegate for one year, Dr. Eshbaugh, of Marengo; censors, Dr. Pflueger, one year; Dr. Freeman, two years.

Motion made and seconded that a rising vote of thanks be extended to Mr. Lumley and Dr. Crawford. Carried.

Adjournment was then taken for dinner.

HYDE WEST,
Secretary.

Personals

Dr. R. O. Hawthorn has removed from Roodhouse to Monticello.

Lieut. A. P. Robertson, of Alton, is now in Ft. Riley, Kansas, for military training.

First Lieut. Ira E. Neer, Springfield, has been assigned to the base hospital at Alexandria, La.

Dr. C. H. Kring and family of New Douglas have removed to Staunton, where they will reside permanently.

Dr. Arthur L. Roberts, Taylorville, suffered from a dislocation of the shoulder due to a runaway horse last month.

Dr. Wm. E. Krumsiek, formerly of Nashville, Ill., has opened offices for practice of medicine at 2011 D. street, Granite City.

Capt. Warren O. Wheelock, M. R. C., Chicago, was reported at the field hospital at Camp Lee, Petersburg, Va., last month.

Capt. W. E. Park, Rockford, has been promoted from first lieutenant and assigned to a military camp in Mississippi.

Maj. Philip Schuyler Doane, Chicago, is said to have been appointed director of health and sanitation for the shipping board.

Dr. W. H. Gilmore, Mt. Vernon, secretary of the Illinois State Medical Society, has recovered from a long siege with a carbuncle.

Dr. Chas. R. Kiser of Madison has received his commission as captain in the Medical Officers Reserve Corps, and is now awaiting orders.

Dr. H. Gideon Wells has returned from Roumania, to which country he was sent as a member of the American Red Cross Mission.

Capt. Edson B. Fowler, M. R. C., of Evanston, was assigned to take a course in military orthopedic surgery in Philadelphia last month.

Dr. J. W. Worthen, who formerly practiced medicine in Bushnell, is said to have been commissioned captain in the Engineer Corps, U. S. A.

Dr. John W. Seids, Moline, has been appointed physician to the Deere Works, succeeding Dr. Henry Arp, resigned, to enter military service.

Capt. R. T. Vaughan, M. R. C., and First Lieut. Karl Meyer, M. R. C., of the Cook County Hospital staff, have recently been commissioned.

The French government has awarded to Dr. Jane Wells Craven, formerly of Evanston, the Croix de Guerre for rescuing and aiding wounded under fire.

Dr. Marcus S. Oliver is under treatment in the Michael Reese Hospital, on account of a skull fracture sustained in a collison between automobiles, January 9.

Dr. Joseph Milligan, of Jacksonville, expects to sail soon for service in the tuberculosis hospitals of France, under the auspices of the Rockefeller commission.

First Lieut. Joseph Lundholm, M. R. C., recently commissioned, has been health commissioner of Rockford since Dr. W. E. Park resigned to accept a commission.

Dr. C. St. Clair Drake, director of the Illinois State Department of Health, visited army camps in several states last month on a sanitary commission of the government.

Dr. A. E. Everett, of St. Louis, has removed to Granite City to take over the practice of the late Dr. J. W. Baker. He is a brother of the late Dr. W. W. Everett of Highland.

Dr. Harry P. Reuss of Granite City has received his commission as lieutenant in the Medical Officers Reserve Corps and was ordered to Ft. Riley, Kansas, for instruction.

Lieut. G. C. Bullington, M. R. C., Nokomis, reported at Houston, Tex., is said to have two brothers in the army there; one a major, the other a lieutenant. The brothers are attorneys.

Capt. Charles J. Swan, Evanston, has completed the course in brain surgery at the University of Pennsylvania, and been assigned to the base hospital at Camp Wheeler, Macon, Ga.

Dr. Frazier Cloyd, Westville, has been appointed local surgeon of the Illinois Traction System, succeeding Dr. Melvin L. Hole, Danville, resigned, to enter military service, and on duty at Fort Riley, Kan.

Dr. Charles Joseph Swan, Evanston, chief of the staff of the Evanston Hospital, resigned January 15 to enter the medical service. He has been assigned to duty at the base hospital, Camp Wheeler, Macon, Ga.

Dr. Heman H. Brown was elected president; Dr. Carlos O. Edgar, Dixon, vice-president; Dr. Alfred N. Murray, secretary, and Dr. J. F. Burkholder, councilor, of the Chicago Ophthalmological Society last month.

Dr. Edwin Oakes Jordan, head of the department of bacteriology of the University of Chicago, returned, January 12, from Fort Sill, Okla., where he has been making a study of epidemic cerebrospinal meningitis.

December 27th Dr. John A. Koch was elected president of the staff of physicians of St. Mary's Hospital, Quincy, succeeding Dr. Otis Johnston, and on the following day he resigned as president of the staff and from the staff of the hospital.

News Notes

—Dr. A. L. Blunt, sentenced for five years and to pay a fine of $12,000 under the Harrison law, is still "out on bond."

—The fuel conservation days caused such holiday conditions generally that many physicians whose offices were heated as usual found few patients calling.

—January 6th the Italian colony of Chicago did honor to Dr. Giovanni B. Bruno, who is now on the Italian front, by giving a dance and bazaar for the Red Cross Ambulance Fund.

—The twenty-eighth annual meeting of the Visiting Nurses' Association of Chicago was held in the Blackstone Hotel, January 9, under the presidency of Mrs. Arthur Aldis. Dr. Frank Billings delivered an address on "Russia."

—At the annual meeting of the Chicago Ophthalmological Society, January 21, Dr. Heman H. Brown was elected president; Dr. Thomas O. Edgar Dixon, vice-president; Dr. Alfred N. Murray, secretary, and Dr. Jacob F. Burkholder, treasurer.

—The State Department of Registration and Education gave the quacks accused of swindling by reporters of the Tribune a hearing January 18. A summary revocation of a few licenses would do much to convince the skeptical that the new law is "rat proof."

—The third annual meeting of the Chicago Society of Internal Medicine was held January 28 under the presidency of Dr. Robert B. Preble. Dr. George B. Eusterman, Rochester, Minn., presented a contribution on "Gastric Syphilis," with a report of forty proved cases.

—A clinical conference on tuberculosis was held in Springfield, January 23, 24 and 25, at which the war tuberculosis problem was thoroughly discussed. Dr. Frank Billings, Ethan A. Gray, Orville W. McMichael, and others attended the conference and acted as instructors at the clinic.

—The Coles-Cumberland Medical Society have elected the following officers: President, J. F. Nolan, Mattoon; vice-president, C. E. Morgan; secretary-treasurer, R. H. Craig, Charleston; censor, Ed. Summers; delegate, R. J. Coultas, both of Mattoon. Two members of this society, Will L. Smith, Toledo, and G. B. Dudley of Charleston, are said to be in France.

—The intense and long continued cold last month, combined with record snowfall, trying enough under any circumstances, was especially severe on practice in the country. Many a country doctor, with rig or auto stuck in the drifts, completed the necessary trip wallowing on foot. Such experiences recall Dr. MacClure and should earn the lasting gratitude of the patient, as well as a good fee.

—The Cook County Commissioners and the staff of the county hospital have offered the services and facilities of the hospital to the Surgeon-General Wm. C. Gorgas for the training of physicians and surgeons of the United States army. In describing the institution, President Reinberg stated that the institution had 2,400 beds, a competent staff selected under civil service, and was a clearing house for the industrial surgery of 3,000,000 people.

—Eight courses have been added to the studies required of the medical, sanitary and veterinary corps at the medical training camps at Fort Oglethorpe, Ga., and Fort Riley, Kans. These are for x-ray specialists, orthopedic surgeons, psychologists, special examining surgeons, sanitary engineers, veterinarians, sanitarians and hospital administration. Three additional courses, general military surgery, genito-urinary surgery and military surgery of the brain, are under consideration.

—Dr. Overton Brooks, chief examining surgeon of the navy recruiting station at 619 South State street, Chicago, after examining 5,000 recruits, is reported as follows: "We are not a race of physical degenerates by any manner of means, but we are a race of physical neglects." The rigid tests of the navy caused the rejection of 3,100, but of this number 1,217 could be reclaimed by treatment and training if reclamation hospitals were established. Thus practically two-thirds are rejected at present. With proper institutions two-thirds would be acceptable.

—A military banquet was given by the Physicians' Club of Chicago, January 15, at the Auditorium in honor of Major L. McArthur, medical director of Base Hospital Unit No. 14; Major

Dean D. Lewis, medical director of Base Hospital Unit No. 13, and Major Nelson M. Percy, medical director of Base Hospital No. 11. Major McArthur responded on behalf of the Base Hospital Unit; Col. Henry I. Raymond, M. C., U. S. army, department surgeon, central department, spoke on behalf of the Medical Corps of the Army; Col. J. S. Dennis, commanding the British Recruiting Mission, told of his work in France and England during the war, and Mr. Marquis Eaton, chairman of the Chicago Chapter of the American Red Cross, discussed some phases of Red Cross work.

—Hospital Unit No. 13 entrained at Chicago January 19 with twenty-seven officers and 126 enlisted men. Red Cross nurses will join them at the port of embarkation. The list of officers follows: Lieut. Col. Chandler D. Lewis, commanding; Capt. W. P. Sights, adjutant. Medical staff: Capt. R. C. Brown, Capt. L. C. Gatewood, 1st Lieut. D. F. Abbott, 1st Lieut. W. T. Robinson, 1st. Lieut. G. O. Solem, 1st. Lieut. T. D. Allen, Capt. L. J. Pollock. Surgical staff: Maj. Dean D. Lewis, Capt. D. B. Phenister, Capt. V. C. David, Capt. A. H. Montgomery, Capt. W. P. Sights, Capt. E. M. Miller, 1st Lieut. M. Hanchett, 1st Lieut. W. A. Taylor, 1st Lieut. A. M. Carr, 1st Lieut. Cameron. Laboratory staff: Capt. A. R. Metz, 1st Lieut. W. E. Gatewood, 1st Lieut. W. D. McGath. Dental staff: 1st Lieut. W. M. Morgan, 1st Lieut. C. F. Pickering, 1st Lieut. Hamline, quartermaster; Chaplain Ware.

—The meeting of the North Shore Branch, Chicago Medical Society, January 8, was devoted largely to the experiences of members of District Appeal Boards. Drs. James B. Herrick and M. L. Harris had each examined hundreds of appeal cases and described the difficulties under which the work is often done and the many ruses resorted to by the selected men. Dr. Harris stated that the original intention of the War Department was to demand a complete physical reexamination of all appellants, but on his argument the plan was changed so that only the conditions on which the appeal was based were examined, thus saving an immense amount of work. Major S. C. Stanton also gave an interesting resumé of the regular army examination routine from his extensive experience. Dr. O. W. McMichael spoke on the subject, "Tuberculosis as Related to the Draft Question." And Dr. Robert H. Babcock gave an address on "Prognosis in Cardiac Affections as Related to the Discovery of Murmurs, and to Arrythmia."

—Chicagoans given commissions in the reserve corps by the war department Jan. 25 were: Irvin S. Koll, 6900 Euclid, captain, medical corps; David C. Straus, 949 Hyde Park boulevard, captain, medical corps. The following from the Cook county hospital were commissioned first lieutenants in the medical reserve corps: Paul Black, Ralph W. Carpenter, Lloyd B. Clinton, Charles P. Eck, Lynn W. Elston, Carl Freund, John F. Grant, Martin B. Jelliffe. From Michael Reese hospital are: Clarence H. Boren, Harry C. Dunlavy, Maurice Doktorsky. Others commissioned first lieutenants, medical corps, are: Arthur S. Bristow, 2449 Washington boulevard; Emor L. Cartright, 1002 Wilson avenue; Charles B. Chouinard, 1928 North Tripp avenue; John D. Davenport, 18 South Michigan avenue; John E. Tally, 1850 West Harrison street; Arthur M. Evans, 2457 Wilcox avenue; George F. Farman, Presbyterian hospital; Frank C. Farmer, 25 East Washington street; George G. Gordon, 1233 Hoyne avenue; Edward Hans, 830 Wellington avenue; Leroy H. Harner, 327 South Campbell avenue; Charles F. Harris, 4164 Clarendon avenue; William J. Henry, 2100 Burling street; Russell D. Uerrold, 624 Independence boulevard; Tom F. Beveridge, 2814 Cottage Grove avenue; Nathan D. Leviton, 2452 West North avenue; John Pellettieri, 1018 South Ashland boulevard.

Marriages

Louis Gilbert Wehrle, M. D., to Miss Irene Frances O'Brien, both of Chicago, recently.

Donald Putnam Abbott, M. D., to Miss Marion Dummer, both of Chicago, January 14.

Lieut. Samuel Jack Taub, M. R. C., U. S. army, to Miss Thelma Goldberg, both of Chicago, December 23.

Alexander L. Blackwood, M. D., Chicago, to Miss Sylvia Bell of South Chicago, Ill., in Toronto, January 16.

Lieut. Placido Ramos Vasquez Hommel, M. R. C., U. S. army, to Miss Maude Twining, both of Evanston, Ill., recently.

First Lieut. Thomas J. Riach, M. R. C., Kankakee, to Miss Loraine Agen Griffin of Houston, at Houston, Texas, January 11.

Asst. Surg. James E. Miller, Jr., U. S. N. R. F., Chicago, on duty at Sacramento, Cal., to Miss Lucille Thomas of Sacramento, Sept 5.

Lieut. Carl Foster Snapp, M. R. C., U. S. army, Chicago, now on duty at Fort McPherson, Ga., to Miss Alice Noyes Stafford of Chicago, at Grand Rapids, Mich., December 12.

Deaths

Charles D. Camp, M. D., Chicago; Rush Medical College, 1879; aged 73; died at his home, January 8, from gangrene.

James Albert Monroe, M. D., Chicago; Rush Medical College, 1864; Bellevue Hospital Medical College, 1869; aged 75; formerly of Chenoa, Ill.; died at his home, January 3, from chronic nephritis.

George D. B. Dods, M. D., Chicago; College of Physicians and Surgeons, Chicago, 1895; aged 56; a Fellow of the American Medical Association; died in Valmora, N. M., January 9, from tuberculosis.

Malcolm C. Roe, M. D. Chana, Ill.; Physio-Medical College, Cincinnati, 1872; Bennett Electric College Chicago, 1878; aged 75; a Fellow of the American Medical Association; died at his home, December 28.

John Brown Mathis (Years of Practice, 1877), Mound City, Ill.; aged 78; a veteran of the civil war and practitioner for many years at America and Mound City, died at his home, January 6, from senility.

Capt. William Elvis Harwood, M. D., Joliet, Ill.; Rush Medical College, 1880; aged 58; died early in January from pneumonia while serving as an x-ray expert with Northwestern University Medical Unit No. 12 in France.

John B. Meigs, Manito, Ill. (license, years of practice, Illinois, 1889); aged 82; a practiitoner since 1856; surgeon of U. S. Volunteers, during the Civil War; also a clergyman; died at his home, November 26, from cerebral hemorrhage.

Charles Henry Burley, M. D., Chicago; Tulane University, New Orleans, 1904; aged 39; formerly a Fellow of the American Medical Association; died in Natchez, Miss., December 30, a day after an operation for disease of the stomach.

John G. McKinney, M. D., Barry, Ill.; Rush Medical College, 1868; aged 81; a member of the Illinois State Medical Society; formerly president of the Pike County Medical Society; died at his home, December 3, from senile debility.

Annette S. Dobbins Richards Mack, M. D., Chicago; Northwestern University Woman's Medical School, Chicago, 1882; aged 78; formerly a member of the Illinois State Medical Society; died at her home, January 6, from cerebral hemorrhage.

Martin Leland Dollahan, M. D., Chicago; Rush Medical College, 1917; aged 26; an intern at Presbyterian Hospital, Chicago; died in that institution, December 15, from septicemia secondary to an infection of the hand due to a necropsy wound.

George Schmauch, M. D., Chicago; University of Königsberg, Germany, 1892; aged 51; a Fellow of the American Medical Association; died while proceeding to a professional call in one of the northwestern suburbs during the blizzard of January 13.

Oliver Allen McIntosh, M. D., Macomb, Ill.; Rush Medical College, 1903; aged 52; died at the Marietta Phelps Hospital, Macomb, January 8, from septic infection of the thumb received while operating on a patient. His three sons are all in the army and stationed at Houston.

Benjamin Buckman, Jr., M. D., Butler, Ill.; Keokuk Medical College, College of Physicians and Surgeons, Keokuk, Iowa, 1908; aged 41; formerly a member of the Arkansas Medical Society; died at the home of his father in Farmingdale, Ill., December 9, from paralysis and endocarditis.

Chauncey Sherrick, M. D., Monmouth, Ill.; Missouri Medical College ,St. Louis, 1881; aged 59; a Fellow of the American Medical Association, and a member of the American Association of Railway Surgeons, and Mississippi Valley Medical Association; local surgeon of the Iowa Central Railroad; died at his home, December 28.

Alfred Coles Haven, M. D., Lake Forest, Ill.; University of Syracuse, N. Y., 1880; aged 60; a Fellow of the American Medical Association, and once president of the Lake County Medical Society; for two years surgeon for the Pacific Mail Steamship Company; one of the most prominent and beloved practitioners of northern Illinois; died at his home, January 3, from angina pectoris.

Capt. Robert Tracy Gillmore, M. D., M. R. C., U. S. Army, Chicago; died at Camp Greenleaf, Fort Oglethorpe, Ga., January 20, from a virulent streptococcus-influenza infection, after an illness of four days. Dr. Gillmore was a native of Chicago, and was 50 years of age. He was a graduate of the Northwestern University Medical School in 1892, and was clinical instructor in gynecology in that institution. He was a fellow of the American Medical Association, and had served acceptably as secretary of the Chicago Medical Society. He was also surgeon for the South Side Elevated Railroad Company. He only recently accepted his commission as captain in the Medical Reserve Corps, and was ordered on active duty. He left Chicago for his new station, January 10. The funeral services were held and the body was interred in the National Cemetery, Chattanooga, Tenn., January 22.